V4443

THOMSON CONSUMER ELECTRONICS

Service

NORDMENDE THOMSON TECHNOLOGY | SABA | TELEFUNKEN | THOMSON

AUDIOVISION
AUDIOVISION
AUDIOVISUEL

VIDEORECORDER

Chassis R 4000
Hifi – Stereo

Bestell-Nr. 103.165.50

ACHTUNG! Ersatzteilbestellungen sind schneller und kostengünstiger über
Fax 0511 / 418-1260

Schaltbilder / Circuit diagrams

Service-Hinweise / Service Notes

Ersatzteile / Spare parts

NORDMENDE	TELEFUNKEN	THOMSON
V 3445 SV	M 9460	VPH 6400
V 4445 SV	M 9470	

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Hinweis:
Mechanische Einstellungen entnehmen Sie bitte der Service Information für das Laufwerk R4000.
Bestellnummer : 102.859.90

Note:
Mechanical adjustments please take from the service manual for Mecha-Deck R4000.
Order number : 102.859.90

PAL / MESECAM / SECAM L

Model	Heads	VPS/PDC	Front AV	Dubbing	SVHS PB	Special Feature	Service Setup Values*
M 9460	4+2	+					410822192009102308
M 9470	4+2	+	+	+	PAL	SAT CTL	400222236415152312
V3445SV	4+2	+	+	+		SAT CTL	110822232415116312
V4445SV	4+2	+	+	+	PAL	SAT CTL / LP Skew	110822312415116312
VPH6400	4+2	prep					000120196009102308
VPH6480	4+2	prep.	+	+		Karaoke	000220196415112308
FV 88 HVX	4+2	+	+				770921192415113309

* Weitere Einzelheiten zu den Service Setup Einstellungen finden Sie im Kapitel " Einrichten der Bedienteil-Software"
* For more details concerning the Service Setup Values refer to the chapter "KDB Software Set-Up".

1. Service Hinweise

1.1 Demontage des Gerätes

1.1.1 Gehäuse

a) 3 Schrauben an der Rückseite des Gehäuses herausdrehen.
b) Die zwei seitlichen Schrauben herausdrehen
c) Das Gehäuseoberteil leicht nach hinten ziehen und anheben.

1.1.2 Frontblende

a) 2 Schrauben an der Oberseite links und rechts vom Cassettenfach herausdrehen.
b) 2 Kunststoffzungen an der Oberseite anheben.
c) Kunstoffzungen links und rechts an der Frontblende lösen.
d) 2 Kunststoffzungen an der Unterkante der Frontblende anheben und die Frontblende abnehmen.
e) Hinweis: Bei der Montage der Frontblende ist darauf zu achten, daß die Kassettenfachklappe hinter den Betätigungshebel auf der linken Seite des Kassettenschachts positioniert wird. Bei der Montage darf keine Kassette eingelegt sein.

1.1.3 Bedienteil-Platte (Key Display Board)

a) Eine Schraube (links neben dem Display) heraus-drehen.
b) 2 Rastnasen an der Oberkante der Bedienteil-Platte anheben und Platte nach vorne/oben herausheben.

1.1.4 Front-Anschlußplatte (nicht bei allen Geräten)

a) Eine Schraube entfernen und 2 Rastnasen anheben. Die Platte nach vorn abnehmen.

1.1.5 Bodenplatte

a) Eine Schraube aus der Bodenplatte entfernen.
b) Die Bodenplatte (in der Mitte) entrasten, nach vorn schieben und abnehmen.

1. Service Notes

1.1 Disassembly

1.1.1 Top cover

a) Remove three screws from the rear.
b) Remove the two side screws.
c) Pull the top cover slightly backwards and lift.

1.1.2 Front panel

a) Remove two screws on the front left and right side of the cassette housing.
b) Bend the two top hooks of the front panel upwards to disengage them from their chassis retainers.
c) Disengage the side hooks of the front panel.
d) Disengage two lower hooks of the front panel and pull the front panel forward and downward to remove.
e) Note: When remounting the front panel it is necessary to position the cassette flap behind the lever at the lefthand side of the cassette housing. When mounting the front panel there should be no cassette inserted.

1.1.3 Key Display Board

a) Remove one screw (on the left next to the display).
b) Disengage two hooks on the upper edge of the KDB and remove the board in a forward and upward direction.

1.1.4 Front connection board (not in all cases)

a) Remove one screw and release the to clips at the upper edge of the board.

1.1.5 Bottom cover

a) Take out one screw from the base.
b) Release the clip in the center of the bottom cover, push the cover to the back and lift it.

1.1.6 Hauptleiterplatte kpl. mit Laufwerk(Mecha Deck)

a) Die Schraube in der Mitte der Bodenplatte von unten entfernen.
b) Frontblende entfernen und die Steckverbindungen auf der Bedienteil-Platte lösen.
c) Verbindungsleitungen zur Tuner/ZF Platte lösen.
d) 2 Schrauben links und rechts (von oben) des Laufwerks herausdrehen.
e) Eine Schraube am Halter der Scartanschlußplatte herausdrehen.
e) Die 2 Clips, die die Hauptplatine halten, lösen.
f) Hauptleiterplatte kpl. mit Laufwerk nach oben herausnehmen.

1.1.7 Scartanschlußplatte

a) Die Hauptleiterplatte kpl. mit Laufwerk ausbauen.
b) Die Scartanschlußplatte ist mit 3 Steckverbindern auf der Hauptleiterplatte befestigt.

1.1.8 Tuner / ZF Platte

a) Die Schraube am Halter für die Scartanschlußplatte herausdrehen.
b) Drei Rastnasen am Boden des Gerätes und eine Rastnase an der Rückseite des Gerätes lösen.
c) Platte herausnehmen.

1.1.9 Kassettenschacht

Vorher Pkt. 1.1.6 durchführen.
a) 2 Schrauben links und rechts am Kassettenschacht lösen.
b) Den oberen Teil des Kassettenschachtes abheben.
c) Den Kassettenhalter bis zum vorderen Anschlag zurückziehen.
d) Die zur Kopftrommel zeigende Seite des Kassettenhalters leicht anheben.
e) Die weißen Hebel links und rechts am Kassettenhalter entriegeln und den Kassettenhalter in Richtung Kopftrommel schieben, bis die hinteren Führungs-zapfen aus ihrer Führung genommen werden können
f) Jetzt den Kassettenhalter wieder in die entgegengesetzte Richtung ziehen, bis auch die vorderen Führungszapfen aus der Führung genommen werden können.

1.1.10 Hauptleiterplatte vom Laufwerk trennen

Vorher Pkt. 1.1.6 durchführen.
a) Steckverbindungen W503 (am Funktions-Kontroll-motor), P101 (Kopftrommel) und W701 (am Ton-/ Kontrollkopf) abziehen.
b) Eine, mit einem Pfeil markierte Schraube, von der Lötseite der Hauptplatine herausdrehen.
c) Antriebsriemen entfernen.
d) Leiterplatte entrasten (4 Clips) und abnehmen.

1.1.6 Main board assy. with Mecha Deck

a) Remove the centre screw from the base.
b) Remove the front panel and disconnect the cable connections on the key display board.
c) Remove 2 screws on the left and right of the Mecha deck.
d) Disconnect the cable connectors to the Tuner/IF Sub board.
e) Remove one screw from the holder of the Scart connection board.
d) Release the 2 clips, which are securing the main board.
e) Remove the Mecha Deck with the main board upwards.

1.1.7 Scart connection board

a) Remove the main board assy. with the Mecha Deck.
b) The Scart connection board is fixed on the Main board with three connectors.

1.1.8 Tuner / IF Sub main board

a) Remove one screw from the holder of the scart connection board.
b) Release three clips, which are securing the board at the bootom of the set. Release one clip at the rear of the set.
c) Remove the board.

1.1.9 Cassette housing

Before doing this step please do step 1.1.6.
a) Take out two screws at the left and the right side of the upper part of the cassette holder.
b) Remove the upper part of the cassette holder
c) Pull the remaining part to the upper end position.(Eject position)
d) Lift the cassette holder at the side, which shows to the drum.
e) Release the white levers (left and right of the casstte holder) and push the cassette holder towards the drum until the guide pins at the rear side come out of the guide rails.
f) Now pull the cassette holder in the opposite direction until the guide pins at the front side also come out of the guide rails.

1.1.10 Separate Main board from Mecha Deck

Before doing this step please do step Pt.1.1.6.
a) Disconnect the cable connection W503 (at function control motor), P101 (to drum motor) and W701 (at audio- / servo control head).
b) Take one screw marked with an arrow from the solder side of the main board.
c) Remove the capstan belt.
d) Release the 4 clips and remove the main board.

1.2 Austausch der Kopftrommeleinheit

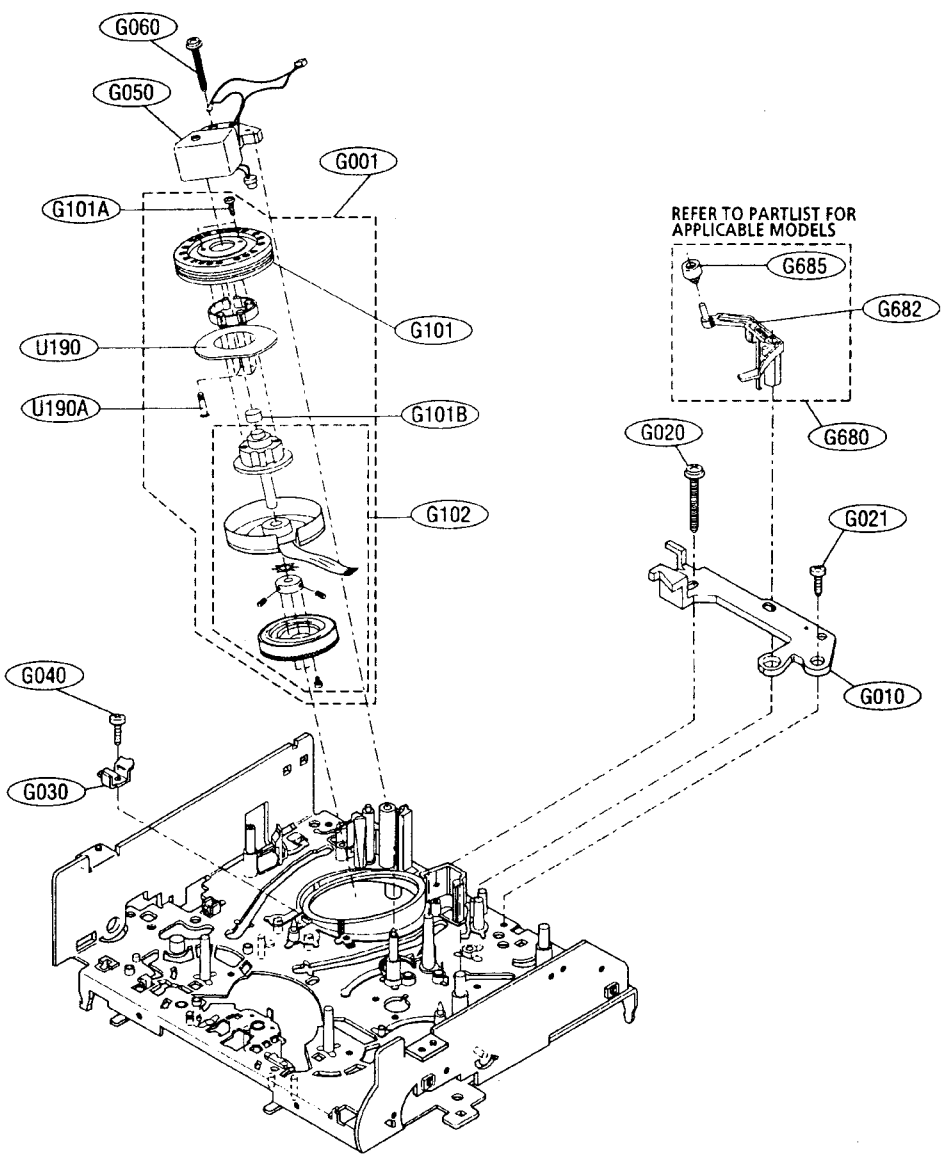
Zum Ausbau der Kopftrommeleinheit ist es **nicht** erforderlich, das Laufwerk auszubauen.
(Siehe Bild unten)

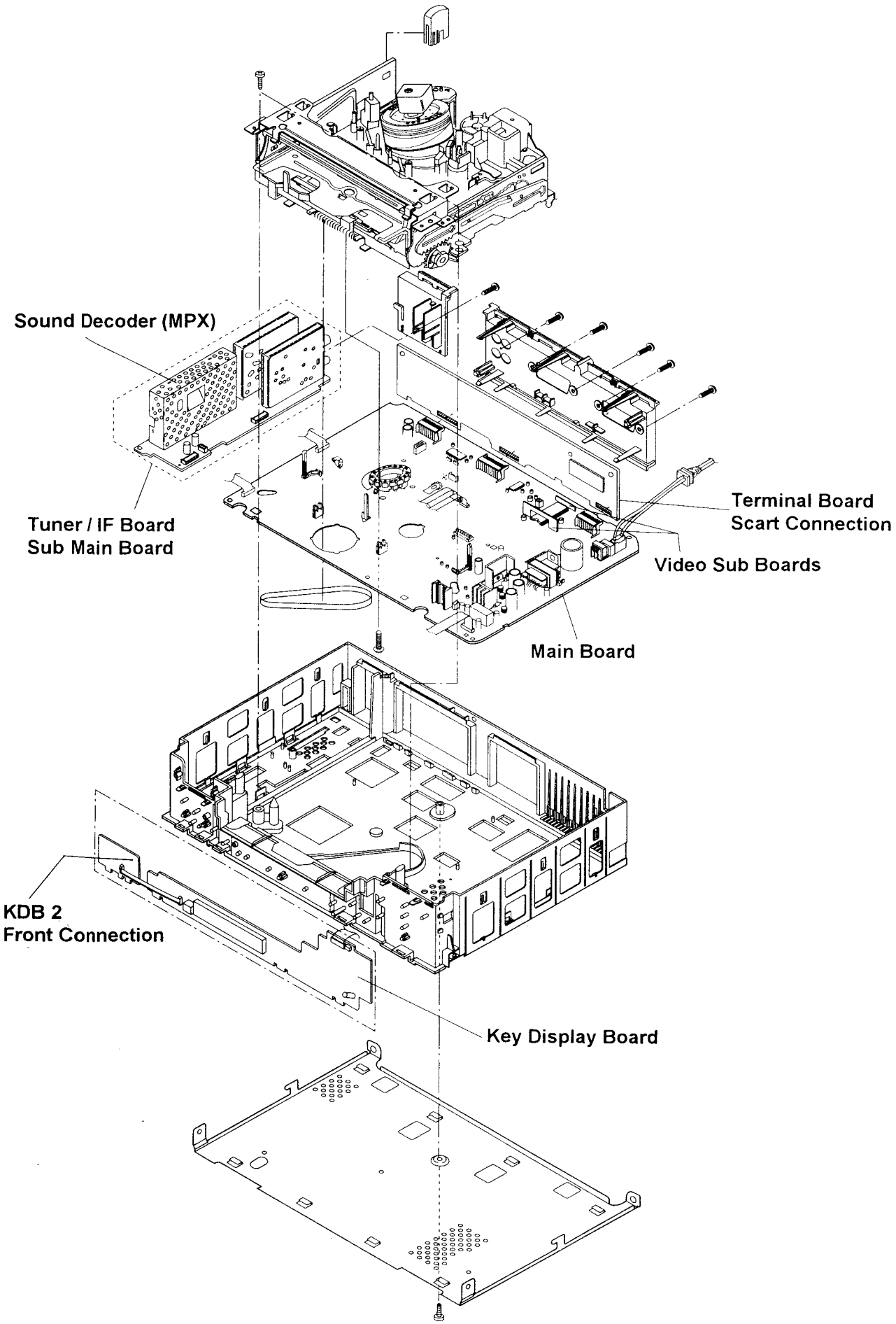
a) Die Schraube (G060) am Schleifergehäuse (oben auf der Kopftrommel) herausdrehen.
b) Schraube (G040) und das Metallteil (G030) (rechts neben dem Bandzug- Fühlhebel) entfernen.
c) 2 Schrauben (G020 und G021) und Metallteil (G010) (oberhalb der Kopftrommel) entfernen.
d) Verbindungsleitung von der Kopftrommel zum Main Board (P101) lösen.
e) Kopftrommeleinheit herausnehmen.

1.2 Exchange of drum unit

It is **not** necessary to remove the mechanism in order to remove the drum unit.
(Refer to the picture below)

a) Remove the screw (G060) at the slip ring assembly at the top of the drum unit.
b) Remove one screw (G040) and the metal part (G030) in front of the drum (on the right next to the tension arm)
c) Remove two screws (G020 and G021) and the metal part (G010) behind the drum unit.
d) Remove the wire connection from Main board (P101) to the drum unit.
e) Remove the drum unit.



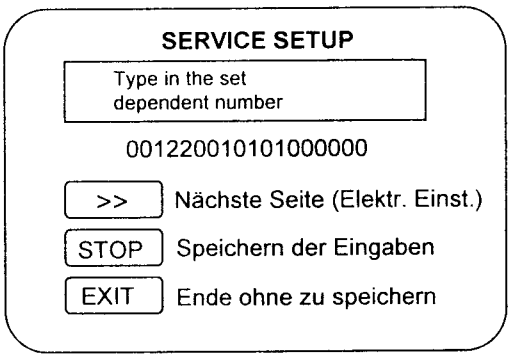

Sound Decoder (MPX)
Tuner / IF Board
Sub Main Board
Terminal Board
Scart Connection
Video Sub Boards
Main Board
KDB 2
Front Connection
Key Display Board

1.3 Service Einstellungen

1.3.1 Einrichten der Bedienteil-Software

Es ist notwendig den KDB-Prozessor über die bestehende Hardware-Konfiguration zu informieren. Dies wird bereits ab Werk konfiguriert und in den EEPROM abgelegt.

1. Videorecorder vom Netz trennen.
2. Tasten "-" und "+" an der Frontseite gedrückt halten und dabei den Recorder am Netz anschließen.
Auf dem TV-Schirm werden 18 Ziffern angezeigt, die den aktuellen Zustand des Gerätes anzeigen.
Im Display erscheint "SETUP".
Im Service Mode können einige typenspezifische Einstellungen vorgenommen werden. In der **Tabelle auf Seite 3 dieser Unterlage** ist für jeden Gerätetyp die spezifische Zahlenkombination angegeben. Die Bedeutung der einzelnen Ziffern ist in der nachfolgenden Tabelle (Seite 8) aufgeführt. Die jeweils einzustellende Ziffer blinkt auf dem Bildschirm. Die Eingaben werden mit den Zifferntasten auf der Fernbedienung durchgeführt. Nachdem alle 18 Ziffern eingegeben wurden, blinkt die erste Ziffer wieder.
Um die neuen Einstellungen abzuspeichern, drücken Sie bitte die STOP Taste. Sie können den Service Mode auch verlassen, ohne abzuspeichern. Dazu drücken Sie bitte die EXIT Taste auf der Fernbedienung.
Wenn Sie die neuen Werte abgespeichert haben, dauert es einige Sekunden, bis diese in das EEPROM geschrieben sind. Während dieser Zeit bleibt das Display dunkel.



Die Taste "Schneller Vorlauf (>>)" dient zur Auswahl der zweiten Seite des Service Modes. In dieser zweiten Ebene werden einige elektrische Einstellungen für die Signalverarbeitung vorgenommen.

Anmerkung:

Nach der Änderung der Einstellungen im Service Mode ist es erforderlich, den Kopftrommel - Umschaltpunkt neu zu setzen.

1.3.2 Kopf-Trommel-Umschaltpunkt

Legen Sie eine schreibgeschützte Video-Meßkassette (Farbbalken oder Grautreppe) in den Videorecorder. Der Recorder geht automatisch in Wiedergabe. Während das Display "PLAY E----" anzeigt, drücken Sie auf der Fernbedienung die Taste "Status". Anschließend drücken Sie am Gerät die Tasten "PLAY" und "+" und "-" gleichzeitig. Das Display zeigt "ADJ" an. Der Videorecorder bleibt in Wiedergabe Mode. Nach einer kurzen Wartezeit beenden Sie die Einstellung, indem Sie eine beliebige Laufwerks-Taste am Bedienteil der Frontblende drücken.
(siehe auch Punkt 2.2.5 der elektrischen Einstellungen)

1.3.3 Sprachumschaltung

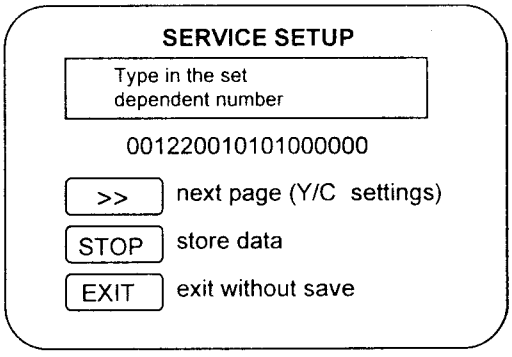
Taste "**STATUS**" der Fernbedienung gedrückt halten, bis die gewünschte Sprache im Display und auf dem Bildschirm erscheint.

1.3 Service Adjustments

1.3.1 KDB Software Set-Up

It is necessary to inform the KDB processor which hardware configuration is present. This is done in the factory and the selections stored in the EEPROM.

1. Disconnect the VTR from the mains.
2. Hold keys "-" and "+" pressed and connect the VTR to the mains.
On the TV screen 18 digits are shown, representing the actual Setup values.
The display shows "SETUP".
In this SERVICE SET UP mode, some VTR-TYPE specific settings can be done. In the **table on page 3 of this document** you will find the values to be entered for each specific set. The meaning of each digit is listed in the following table (page 8). The actual digit for the input is flashing on the screen. The inputs are done by the numeric keys on the remote control. After the input of all 18 digits, the first digit is flashing again. Store the new settings by pressing the STOP key on the remote control. You can also leave the SERVICE SET UP mode without storing the new settings. To do so, please press the EXIT key on the remote control.
If you have decided to store the new settings, it takes some seconds to initialise the EEPROM. During this time the display remains dark.



The key "FAST FORWARD (>>) is used to switch over to the second page of the Service Mode. This function is used to perform some electrical adjustments for the signal processing.

Important note:

After the modification of the settings in the Service mode, a new adjustment of the HEAD SWITCHING POINT is necessary.

1.3.2 Head switching point

Insert a protected adjustment test cassette into the video recorder. Playback is set automatically. When the display shows "PLAY E----" press the key "STATUS" on the remote control. After that, press PLAY and "+" and "-" keys on the front panel (Hold all three keys pressed).The display indicates "ADJ". The VCR will stay in PLAY mode. After a few seconds, stop the adjustment by pressing Stop key on the front panel.
(see point. 2.2.5 of the electrical adjustments)

1.3.3 Language selection

Keep the STATUS key pressed down, to choose the language of the menus on the display and on the TV screen.

Number of digit	Meaning	Value	
1	Brand	0 - Thomson 1 - Nordmende 2 - Ferguson (Thomson) 3 - Thomson (ASIA) 4 - Telefunken 5 - Saba 6 - Brandt 7 - Ferguson (Saba) 8 - GE (Australia)	
2	Tuner Sound	0 - L (4.5 MHz AM) 1 - BG (5.5 MHz FM) 2 - I (6 MHz FM) 3 - DKK`(6.5 MHz FM) 4 - BH (5.5 MHz) 5 - DK`(China) 6 - NTSC-M 7 - PAL I UK	
3 and 4	Tuner standard	00 - Secam L 01 - PAL-Secam (Multi) 02 - Central Europe (BG,DK,L 03 - Pan Europe (BG,DK,L,I,M) 08 - Germany (BG) 09 - UK (PAL I Ire, PAL I UK) 10 - ME (BG,DK) 11 - AU (BG,BH) 12 - X (BG,DK,I) 13 - FE,HK,China (BG,DKK`,I,DK"C") 14 - FM (BG,DKK`,I,DK"C",M)	 DKK`= DK OIRT DK"C" = DK China
5	KDB Version	0 - LED Keyboard 1 - VFD/NTSC (OSD by Main µP) 2 - VFD (OSD by Front µP)	
6	Language	0 - french/malay 1 - english 2 - german/chinese 3 - italien/thai 4 - spanish 5 - swedish 6 - dutch	
7 and 8	Servo Type	bit 0 - Longplay enabled = 1 bit 1 - HIFI enabled = 1 bit 2 - Dubbing enabled = 1 bit 3 - Flying erase enabled = 1 bit 4 - Auto play enabled = 1	15_{dec} = (01111) Fly erase /dubbing/Hifi / LP if one bit is 0 , the corresponding function is disabled
9	Servo Type (Heads)	0 - 2 head PAL 1 - 3 head PAL 2 - 4 head PAL 3 - 2 head NTSC 4 - 2 head PAL/SECAM 5 - 3 head PAL/SECAM 6 - 4 head PAL/SECAM 7 - 4 head NTSC	
10	Scart	0 - 2 Scart connectors 1 - 1 Scart connector 2 - 6 RCA (Cinch) (2 in 1 out) + Si 3 - 4 RCA (Cinch) (1 in 1 out) 4 - 2 Scart connectors + Front AV 5 - 1 Scart connector + Front AV 6 - 6 RCA + Front AV + Si 7 - 4 RCA + vFront AV	
11 and 12	Special functions	bit 0 - VIDEO + bit 1 - Satellite control bit 2 - Learning Remote Control bit 3 - Expertmode is default	if one bit is 0 , the corresponding function is disabled
13 and 14	Special functions	bit 0 - Auto Programming bit 1 - Station Identification bit 2 - Index Plus bit 3 - PDC	if one bit is 0 , the corresponding function is disabled
15	Special functions	bit 0 - Auto Clock bit 1 - NTSC playback allowed bit 2 - NTSC record allowed	if one bit is 0 , the corresponding function is disabled
16	Special functions	bit 0 - TV playback selection PAL-NTSC bit 1 - Auto LP Record	if one bit is 0 , the corresponding function is disabled
17 and 18	I.D. Tagging	bit 0 - Tagging bit 1 - Advertising message bit 2 - Channel Identification bit 3 - 99 programs/8 Timers	if one bit is 0 , the corresponding function is disabled

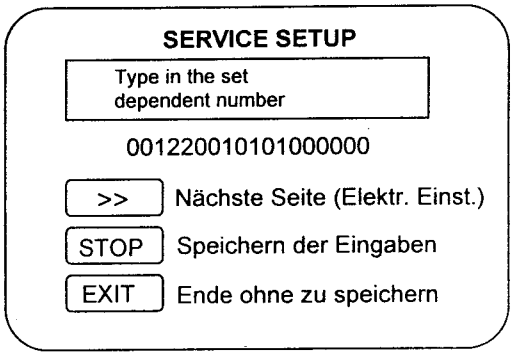
For the digits 7 and 8 and 11 to 18, the corresponding values of each bit have to be added, to calculate the decimal value.
Bei den Digits 7 und 8 und 11 bis 18 müssen die Dezimalzahlen durch Addition der Wertigkeit der einzelnen Bits ermittelt werden.

1.4 Einrichten der Video-Signalverarbeitung

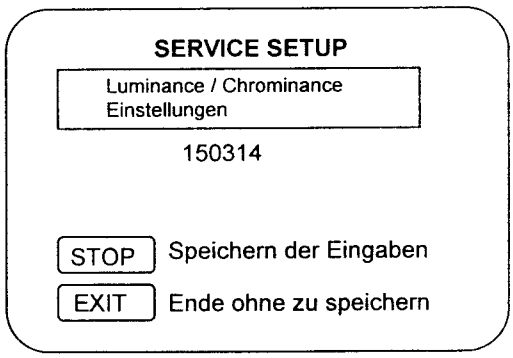
Die Geräte werden in der Fabrik automatisch abgeglichen. Dabei werden die ermittelten Daten im EEPROM des Videorecorders abgespeichert. Ein Abgleich der Video-Signalverarbeitung von Hand ist nicht mehr erforderlich.
Sollte bei einem Defekt des Gerätes das EEPROM zerstört sein, dann können die Daten für die Video-Signalverarbeitung über das Service Menü eingegeben und im neuen EEPROM gespeichert werden. Um das Service Menü zu aktivieren, gehen Sie bitte nach den folgenden Anweisungen vor.

1. Videorecorder vom Netz trennen.
2. Tasten "-" und "+" an der Frontseite gedrückt halten und dabei den Recorder am Netz anschließen.

Auf dem Bildschirm erscheint das Service Menü.



Aktivieren Sie die zweite Seite des Service Modes, indem Sie auf der Fernbedienung Taste "Schneller Vorlauf (>>)" drücken.
Es erscheint das folgende Menü auf dem Bildschirm.



Die 6-stellige Ziffernfolge zeigt die Werte für den aktuellen Abgleich. Die Bedeutung der einzelnen Ziffern ist in der nachfolgenden Tabelle aufgeführt. Die Eingaben werden mit den Zifferntasten auf der Fernbedienung durchgeführt.
Falls eine neue Eingabe der Daten erforderlich ist, geben Sie bitte die folgende Ziffernfolge ein.

150314

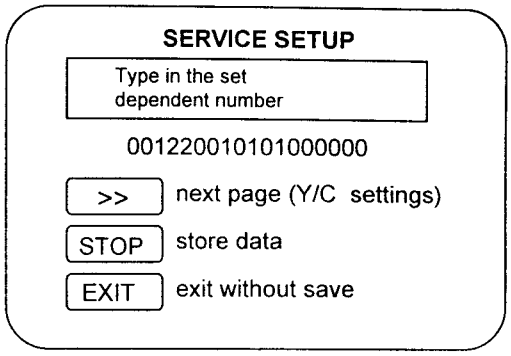
Diese Ziffernfolge stellt die Daten für einen optimalen Abgleich dar und gilt für alle Geräte.

1.4 Installation of the video signal processing

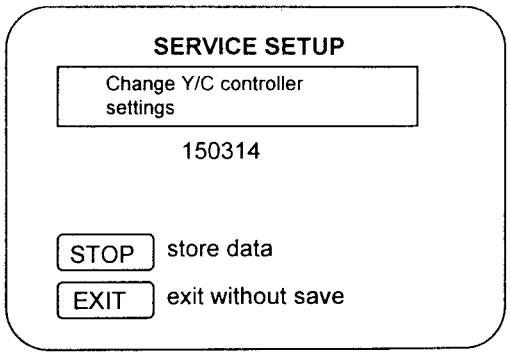
The sets are adjusted automatically in the factory. The data for the adjustment are saved inside the EEPROM. A manual adjustment of the video signal processing is not necessary. In case of a defect of the EEPROM the data for the adjustment of the video signal processing can be entered via the the Service Setup and saved in the EEPROM. To perform the input of the data for the video signal processing, the Service Mode has to be activated as mentioned below.

1. Disconnect the VTR from the mains.
2. Hold keys "-" and "+" pressed and connect the VTR to the mains.

The Service Menu will appear on the TV screen.



Activate the second page of the Service Mode by pressing the "FAST FORWARD (>>)" key on the remote control.
The following picture appears on the TV screen.



The 6 digits on the screen are representing the actual values for the adjustment. The meaning of each digit is listed in the following table. The inputs are done by pressing the numeric keys on the remote control. If the new input of the data is necessary, please put in the following numbers.

150314

They are valid for all sets and represent an optimal adjustment.

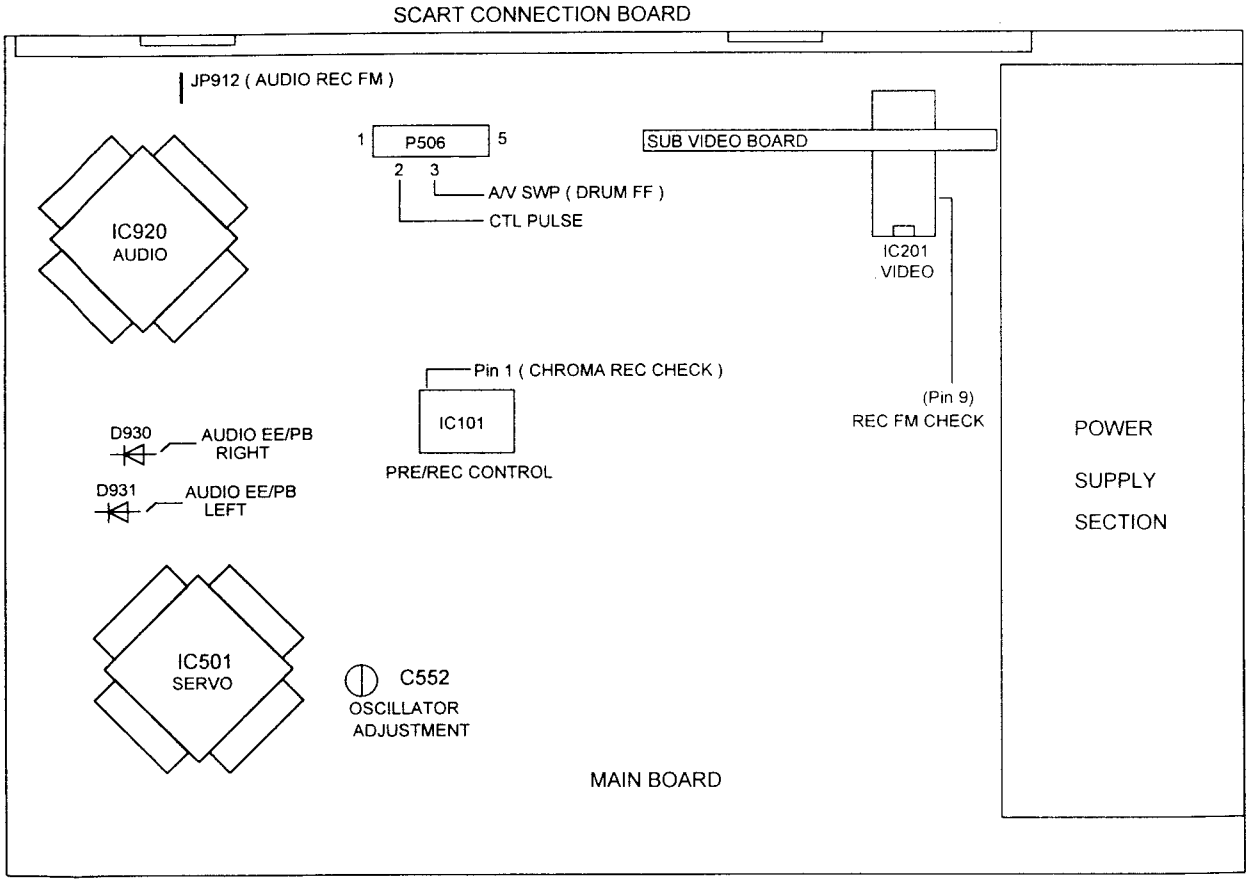
Number of the digit	Meaning	Value	Example
1 and 2	Playback Equalizer	bit 0-1 : PB EQ GAIN (00:min 11:max) bit 2-3 : PB EQ 2 (00:min 11:max)	$1111_b = 15_d$
3		Always 0	
4	Y/C Record Current	bit 0-2 : REC C (000:max 111:min)	$101_b = 5_d$
5	PB Noise Canceller	PBNC2 on/off	0 = off 1 = on
6	Secam Record Current	REC C Level (000:max attn 111:min attn)	$101_b = 5_d$

Description of digits used for the video signal processing setup.
Beschreibung der einzelnen Digits für die Einrichtung der Video Signalverarbeitung.

2. Electrical Adjustments / Elektrische Einstellungen

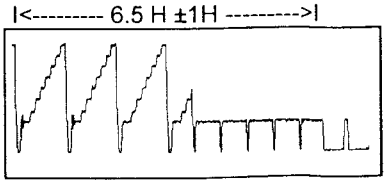
2.1 TEST POINT- AND ADJUSTMENT OVERVIEW · TESTPUNKT- UND ABGLEICH - ÜBERSICHT

MAIN BOARD · HAUPTLEITERPLATTE

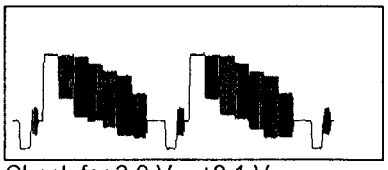


2.2 Measurements Servo part - Main board
Messungen Servoteil - Hauptleiterplatte

Note: low level < 0.8 V; high level > 4.0 V Anmerkung: L-Pegel < 0,8 Volt; H-Pegel > 4,0 Volt

N°:	Einstellung Item	Betriebs-art Mode & Signal	Meßmittel Eingangssignal Test Equipment Input Signal	Meßpunkt Testpoint	Einstell-Punkt Adjustment Point	Beschreibung Description
Hinweis: Der Einsteller für den Oszillator Abgleich (C552) ist nur erreichbar, wenn das Laufwerk ausgebaut wird. Um den Abgleich vornehmen zu können, muß wenigstens die Leitung W503 zur Funktions-kontrolleinheit angeschlossen werden.				**Note:** The variable capacitor (C552) for the oscillator adjustment is available only if the mecha deck is removed from the main board. For the adjustment it is necessary to connect at least the connection W503 to the function control unit.		
2.2.1	Oscillator Frequency Oszillator Frequenz	Service Mode	Frequency counter Frequenz-zähler	IC 501 Pin 63 (TP 501)	C552	1.) Activate the Service Mode 2.) Adjust for 4 MHz ± 40 Hz 1.) Service Mode aktivieren 2.) 4 MHz ± 40 Hz einstellen
2.2.2	Drum FF (A/V SWP) Kopftrommel-Flip-Flop	REC/ PB	Oscilloscope	IC 501 Pin 89 (P506 / 3)	None	Confirm 25 Hz signal . 25 Hz Signal überprüfen
2.2.3	Capstan FG Frequency Capstan FG Frequenz	PB / REC (SP)	Frequency counter Frequenz-zähler	IC501 Pin 44	None	Confirm 757 Hz ± 10 Hz 757 Hz ± 10 Hz überprüfen
2.2.4	CTL Signal CTL-Signal	PB REC	Oscilloscope	IC 501 Pin 46 (P506 / 2) IC501 Pin 33	None	PB: confirm 25 Hz, 5Vpp signal PB: 25 Hz, 5Vpp Signal überprüfen REC: confirm 25 Hz, 4Vpp signal REC:25 Hz, 4Vpp Signal überprüfen
2.2.5	Head Switching Point Kopf-Trommel-Umschaltpunkt	PB PB	Dual-Trace Oscilloscope Trigger ext. P506 Pin 3 (Drum FF) Zweistrahl-Oszilloskop; Externer Triggerpkt. P506 Pin 3 (Drum FF)	SCART (AV1) Pin 19 SCART (AV1) Pin 19	Adjustment by software setup Software-Einstellung	1. Insert protected alignment test cassette 2. When the display shows "PLAY E----" press the STATUS key on remote control. 3. Press keys "+","-" and "PLAY". 4. Display shows "ADJ". 5. Confirm that head switching point is 6.5 H ± 1 H before vertical-sync 6. Stop the adjustment by pressing Stop key on the front panel. 1. Geschützte Meßkassette einlegen 2. Taste "STATUS" auf Fernbedienung drücken, sobald Display "PLAY E---" anzeigt. 3. Tasten "+" und "-" gedrückt halten und zusätzlich Taste "Play" drücken. 4. Display zeigt "ADJ". 5. Prüfen, ob Kopfumschaltpunkt 6,5 H ± 1 H vor dem Vertikal-Synchronimpuls liegt 6. Einstellung durch Drücken einer Laufwerks Taste beenden. I<--------- 6.5 H ±1H --------->I 

2.3 Video signal processing (Main board) • Traitement vidéo (Platine principale) Video Signalteil (Hauptleiterplatte)

N°:	Einstellung Item	Betriebs-art Mode & Signal	Meßmittel Eingangssignal Test Equipment Input Signal	Meßpunkt Testpoint	Einstell-Punkt Adjustment Point	Beschreibung Description
2.3.1	E-E - level E-E - Pegel	E-E Colour bar 1 V_{pp} E-E Farbbal-ken, 1 V_{ss}	Oscilloscope Oszilloskop	Pin 19 of SCART (AV1) Anschluß 19 von SCART (AV1)	None Kein Abgleich	 Check for 2.0 V_{pp}±0,1 V_{pp} 2.0 V_{ss} ±0,1 V_{ss} messen
2.3.2	FM REC Level FM-Aufnahme - Pegel	REC without signal REC ohne Signal	Oscilloscope Oszilloskop	IC201, Pin 9	None Kein Abgleich	Check for 800 mV_{pp} 800 mV_{ss} überprüfen
2.3.3	PAL Chroma REC-level PAL Farbaufnahme-Pegel	REC PAL Colour bar REC PAL Farb-balken	Oscilloscope Oszilloskop	IC101 Pin 1	None Kein Abgleich	Check for 100 mV_{pp} ±10 % burst amplitude 100 mV_{ss} ±10 % Burstamplitude überprüfen
2.3.4 (not all sets)	SECAM Chroma REC-level SECAM Farbaufnahme-Pegel	REC SECAM Colour bar REC SECAM Farb-balken	Oscilloscope Oszilloskop	IC101 Pin 1	None Kein Abgleich	Check for 100 V_{pp} ±10 % magenta bar amplitude. Magenta Farbbalken auf eine Amplitude von 100 mV_{ss} ±10 % überprüfen.

2.4 On Screen Display - Main board · OSD Platine principale · OSD - Hauptleiterplatte

N°:	Einstellung Item	Betriebs-art Mode & Signal	Meßmittel Eingangssignal Test Equipment Input Signal	Meßpunkt Testpoint	Einstell-Punkt Adjustment Point	Beschreibung Description
2.4.1	**OSD** Chroma-oscillator		Frequency-counter Frequenzzähler	via 4k7 to IC501 / 78 Über 4k7 an IC501 / 78	None keiner	Confirm 17,734475 MHz ± 500 Hz Überprüfen der 17,734475 MHz ± 500 Hz .

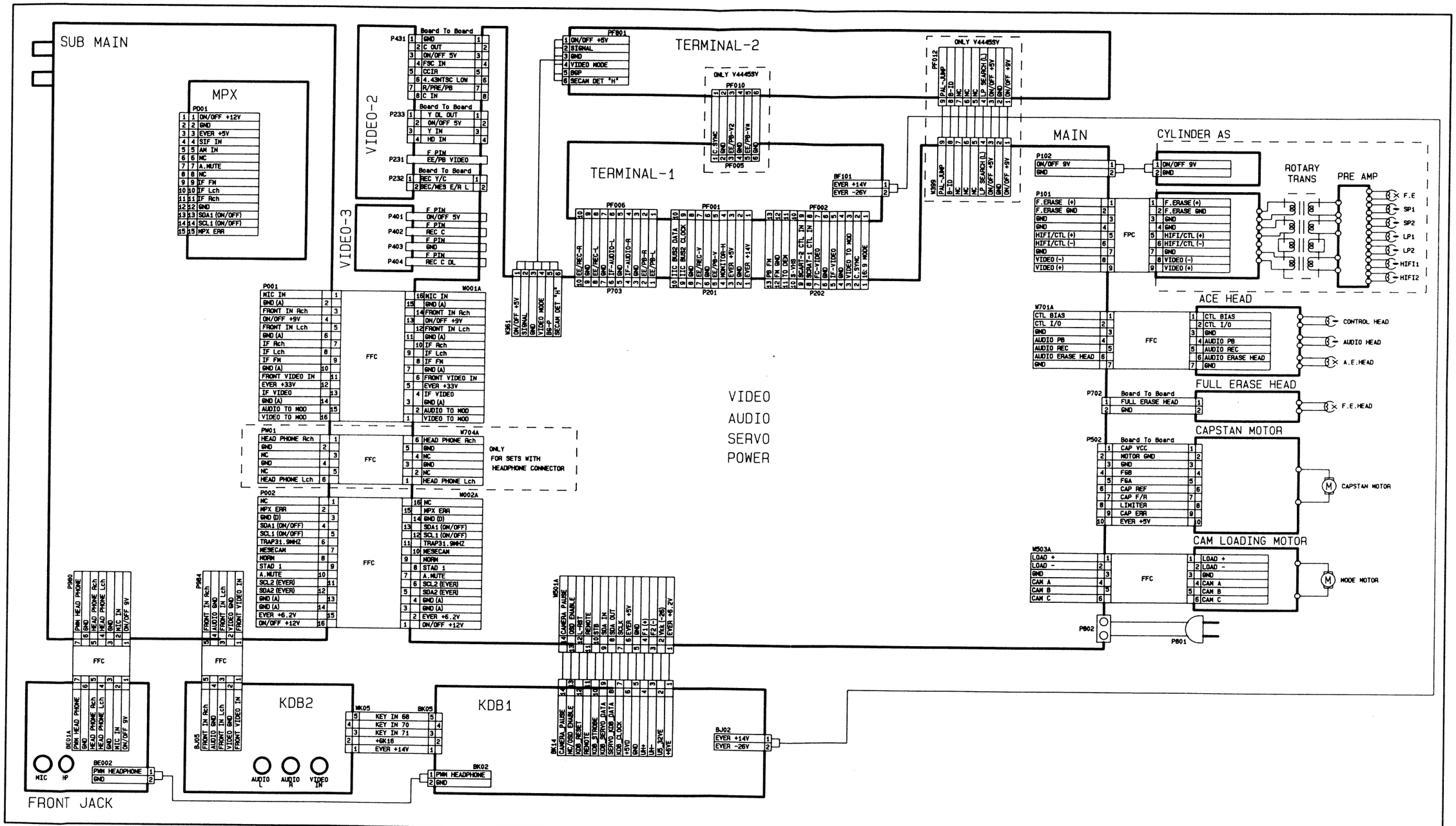
2.5 Audio signal processing (Main board) • Traitement audio (Platine principale) Audio Signalteil (Hauptleiterplatte)

N°:	Einstellung Item	Betriebs-art Mode & Signal	Meßmittel Eingangssignal Test Equipment Input Signal	Meßpunkt Testpoint	Einstell-Punkt Adjustment Point	Beschreibung Description
2.5.1	FM REC Current FM-Aufnahmestrom	REC AV1 without signal ohne Signal	Oscilloscope Oszilloskop	Jumper JP912 Brücke JP912	None Kein Abgleich	Check for 1Vpp ± 0.2Vpp 1Vss ± 0.2Vpp überprüfen
2.5.2	REC - PB Check Aufnahme-Wiedergabe Test	REC / PB	Oscilloscope AF generator Oszilloskop NF Generator	Anode D930 and D931 Anode D930 und D931	None Kein Abgleich	1.) Record the Audio signal. Note the amplitude of the signal at D930 and D931 2.) Playback the recorded signal signal 3.) Confirm the same level at D930/ D931 as in REC mode. 1.) Audio Signal aufzeichnen. Amplitude des Signals an D930/ D931 notieren. 2.) Aufgezeichnetes Signal wieder-geben. 3.) Gleiche Amplitude an D930/D931 wie in REC Mode messen.

Abbreviations / Abreviations / Abkürzungen

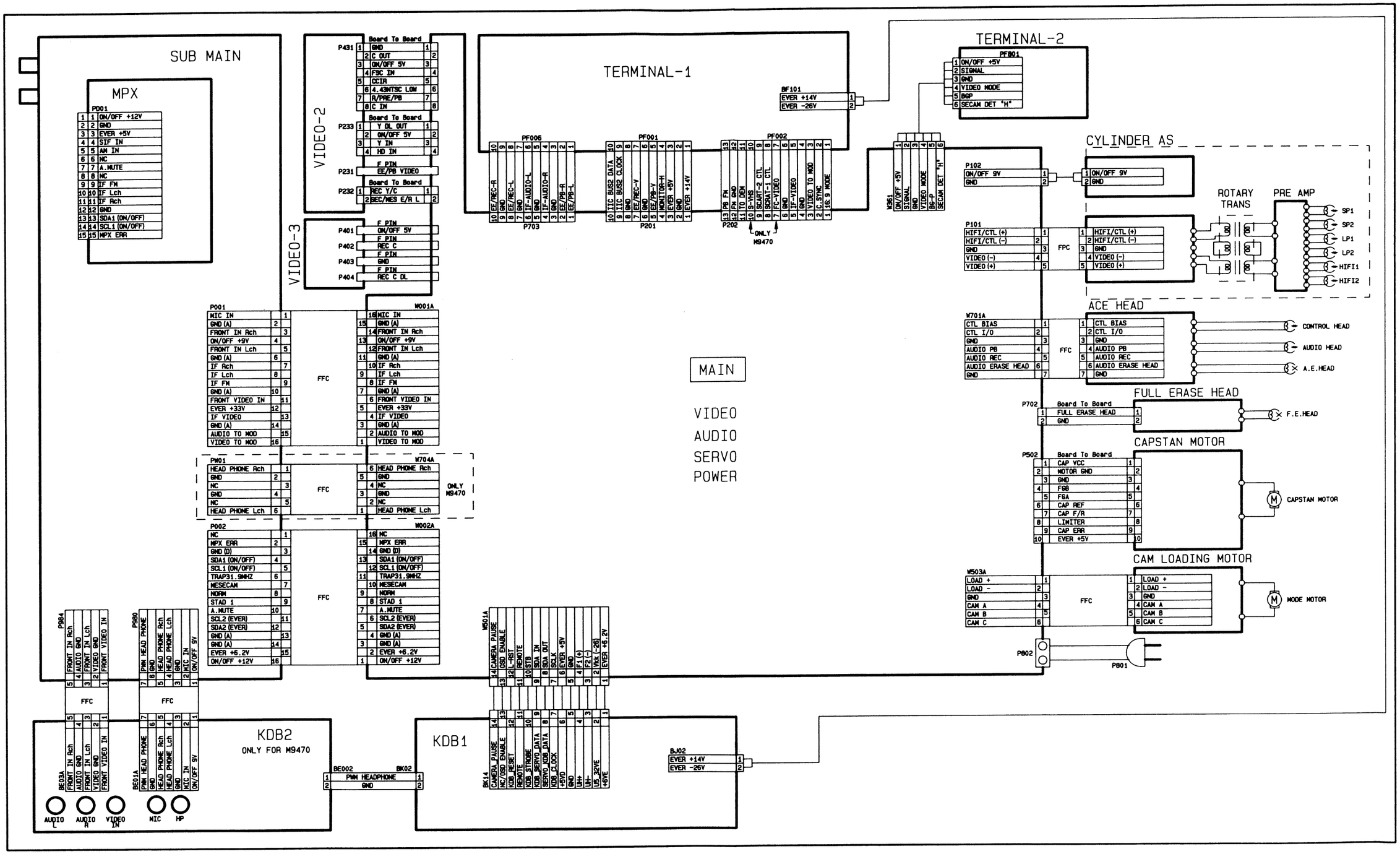
AC	Alternating Current
ACC	Automatic Color Control
ACK	Automatic Color Killer
AD.REF	Analog/Digital Converter Reference
AE	Audio Erase
AFC	Automatic Frequency Control
AGC	Automatic Gain Control
A_IF	Audio IF
ALC	Automatic Level Control
AMP	Amplifier
APC	Automatic Phase Control
AP.CONT	Aperture Control
AV	Audio-Video
A/V SWP	Audio/Video Switching Point (DRUM FF)
B.EMPH	Burst Emphasis
B.DEEMPH	Burst Deemphasis
BG	Burst Gate
BID	Burst Identification
BLK	Blanking
BPF	Band Pass Filter
CAP	Capstan
CBC	Cable Box Control (Satellite Control)
CCD	Charge Coupled Device
CH	Channel
CFG	Capstan Frequency Generator
CLK	Clock
COMP	Comparator
CONV	Converter
CPWM	Capstan Pulse Width Modulation
C-REG	Capstan Regulation
CR	Color Rotary
CS	Chip Select
CSYNC	Composite Synch
CTL	Control
DC	Direct Current
D.LIM	Double Limitter
DEEMPH	Deemphasis
DET	Detector
D-FG	Drum Frequency Generator
DFF	Drum Flip Flop
DIF.EQ	Differential Equalizer
DIG	Digital
DLY	Delay
DOC	Drop Out Compensation
E-E	Electronic-Electronic
EMPH	Emphasis
ENV	Envelope
EP	Extended Play
EQ	Equalizer
F.E	Full Erase
F.REW	Fast Rewind
F.FWD	Fast Forward
F/R	Forward/Rewind
FCB	Front Connection Board
FF	Fast Forward
FG	Frequency Generator
FMCI	FM Carrier Interleave
FWD	Forward
GND	Ground
GCA	Gain Controlled Amplifier
HASEL	Head Amplifier Select
HAB	Head Amplifier Board
HD	Horizontal Synch Pulse
HPF	High Pass Filter
I.R	Infra Red
ID	Identification
INP/IN	Input
KDB	Key Display Board
LIM	Limitter
LP	Long Play
LPF	Low Pass Filter
MESECAM	Middle East Secam
NC	Noise Canceller
OSD	On Screen Display
PB	Play Back
PB_C	Play Back Chroma
PCB	Printed Circuit Board
PDC	Program Delivery Control
PG	Pulse Generator
PH	Pseudo Horizontal Synch
PIF	Picture IF
PLL	Phase Locked Loop
PS	Phase Switch
PV	Pseudo Vertical Synch
PWM	Pulse Width Modulation
REC	Record
REC_C	Record Chroma
REW	Rewind
REV	Reverse
SCL	Serial Clock
SDA	Serial Data
SEC	SECAM
SU REEL	Supply Reel
SMPS	Switch Mode Power Supply
SP	Standard Play
SS	Synch Separator
SW	Switch
TU REEL	Take Up Reel
TMB	Terminal Board
VCA	Voltage Controlled Amplifier
VCO	Voltage Controlled Oscillator
VCR	Video Cassette Recorder
VD	Supply Voltage Digital
VE	Voltage (Ever)
V_ENV	Video Envelope
V_IF	Video IF
VS	Voltage (Switched)
VM	Motor Voltage (Drum & Loading motor)
VMC	Motor Voltage (Capstan motor)
VPS	Video Program System
W/D	White/Dark
Y/C	Luminance/Chrominance

Wiring diagram (Thomson/Nordmende) • Schéma d'interconnexions (Thomson/Nordmende) • Verdrahtungsplan (Thomson/Nordmende)
Diagramma delle interconnessioni (Thomson/Nordmende) • Esquema de interconexiones (Thomson/Nordmende)



V 3445 SV / V 4445 SV

Wiring diagram (Telefunken) • Schéma d'interconnexions (Telefunken) • Verdrahtungsplan (Telefunken)
Diagramma delle interconnessioni (Telefunken) • Esquema de interconexiones (Telefunken)



M 9460 / M 9470

Components location • Localisation des elements • Lage der Bauteile • Localizzazione degli elementi
Localizacion los componentes

RI..

RI01	C4
RI02	F3
RI03	E4
RI04	C4
RI05	E4
RI06	D3
RI07	C4
RI08	E4
RI09	C4
RI10	C4
RI11	C4
RI12	C3
RI13	C3
RI14	C3
RI15	D3

R0..

R085	F1
R086	F1
R092	F4
R093	F4

R1..

R101	D1
R102	D1
R104	D1
R105	E1
R106	E2
R108	D2
R109	C2
R110	D1
R112	D1
R113	D1
R114	E1
R131	D2
R132	D2
R133	E1
R134	E1
R135	E1
R136	E1
R137	E1
R138	E1
R139	E1
R140	E1
R195	B2
R197	B2
R199	B2

R2..

R201	B1
R202	B1
R203	B1
R204	B2
R205	B2
R206	B2
R207	B2
R208	B2
R209	D1
R210	D1
R211	D1
R213	B2
R214	B1
R215	B1
R216	B2
R217	B2
R218	B1
R219	B1
R221	B1
R222	B/C 1
R223	B2
R224	B2
R225	B2
R226	B2
R227	B3
R228	B2
R229	B1
R240	B1
R241	D1
R261	B2
R262	B2
R263	B2
R264	B2
R265	B2
R266	B2
R267	B2
R268	B2
R269	B2
R270	B2
R271	D1
R273	C1
R274	C2
R275	B/C 1
R276	B/C 1
R277	B1
R291	B2
R292	B2
R293	B2

R3..

R389	A1
R399	A1

R4..

R401	B1
R402	B1
R403	B1
R404	B2
R405	B1
R406	B1
R411	B2
R412	C1
R413	C1
R414	B1
R415	B1
R416	B1
R417	B1
R418	B1
R420	B1
R421	B1
R422	C1
R423	C1
R425	C1
R426	C1
R429	B1
R432	C1
R442	C1
R461	B1
R471	D1
R472	D1
R475	E1
R476	E1
R477	E1
R478	E1
R479	C1
R480	D1
R481	C2
R482	C1
R483	E1
R497	C1
R498	C1
R499	C1

R5..

R501	D2
R502	E3
R503	E3
R504	E3
R505	E3
R506	E3
R507	E3
R508	E3
R509	E3
R510	E3
R511	E3
R512	D3
R513	C2
R514	F3
R515	C2
R516	F3
R517	C2
R518	C3
R519	F3
R520	D2
R522	D2
R523	C2
R524	D2
R525	D2
R526	D2
R527	C2
R528	C2
R529	C2
R530	D2
R531	D2
R532	C2
R533	D3
R534	D3
R535	D3
R536	E3
R537	F4
R538	F4
R541	C4
R542	C3
R543	A4
R544	C4
R545	C4
R546	C4
R547	E4
R548	F4
R549	F4
R561	E4
R562	E4
R563	D3
R564	F4
R565	E4
R570	C3
R571	C3
R572	D2
R573	D3
R574	E4
R575	E3
R580	C2
R581	C2
R590	B3
R592	D3
R594	C3
R595	C3
R596	B3
R597	C4
R598	B3
R599	C3

R6..

R601	D3
R602	F3
R604	F3
R605	F4
R606	E4
R607	E4
R621	C2
R622	C2
R615	E4

R7..

R701	E1
R702	E1
R703	E1
R704	E1
R705	E1
R706	E1
R707	E2
R714	E1
R716	E1
R717	E1
R718	E2
R719	E2
R733	E2
R734	E2
R735	E2
R740	F2
R741	F2
R760	E1
R761	E1
R762	E1
R763	F3
R764	F3
R765	F3
R766	F4
R770	E1
R771	E2
R772	E2
R773	E2
R774	E2
R775	E/F 2
R777	E2
R782	E2
R783	E2
R784	E2
R789	E2
R790	E2
R791	E2
R792	E2
R793	E2
R794	F2

R8..

R804	A3
R808	A3
R814	A4
R820	A4
R821	A4

R9..

R920	F2
R921	F2
R922	F2
R923	F2
R924	F2
R925	F2
R926	F2
R927	F2
R928	F2
R929	F2
R930	F2
R931	F2
R932	F2
R933	F2
R934	F2
R935	F2
R936	F2
R938	F2
R939	E3
R942	F2
R943	F2
R946	F3
R947	F3
R948	F3
R963	E/F 2
R964	F 2
R965	E2
R970	E2
R973	F1
R975	E2
R976	E1
R977	E1
R978	F1

RJ..

RJ05	D3
RJ06	D3
RJ11	B1
RJ12	C1
RJ13	B2
RJ14	B2
RJ15	E1
RJ16	D1
RJ17	D1
RJ21	B1
RJ22	B1
RJ23	B1
RJ24	B1
RJ27	B1
RJ28	E2
RJ30	B2
RJ31	B2
RJ32	E1
RJ33	B2
RJ34	D1
RJ35	B2
RJ39	C1
RJ42	C1
RJ43	B1
RJ44	B/C 1
RJ45	C1
RJ46	B/C 1
RJ47	C2
RJ48	C2
RJ49	C2
RJ52	F3
RJ53	C3
RJ54	D3
RJ61	F3
RJ62	F3
RJ80	A3
RJ81	B4
RJ90	D2

C...

CI01	F3
CI02	B3
CI03	E4
C095	F1
C097	F1
C808	A3
C812	A3
C946	F3
C947	F2
C969	F1
C970	F1
C972	E1
C975	F1
C978	E2
C979	E2

C1..

C101	D1
C102	D1
C103	D1
C104	D1
C107	E1
C109	D2
C110	D/E 2
C112	D1
C113	D1
C114	D1
C115	D1
C116	D1
C117	D2
C119	D2
C120	D1
C121	D/E 1
C122	D/E 1
C131	D2
C133	E1
C134	E1
C135	E1
C136	E1
C137	E1
C197	B2

C2..

C201	B 2/3
C202	B1
C203	B1
C205	B1
C207	B1
C208	B2
C209	B2
C210	B2
C212	D1
C213	D1
C221	B1
C223	D1
C225	B2
C226	B2
C227	B2
C261	B2
C262	D1
C263	B1
C264	D1
C265	D1
C266	B1
C267	C1

C4..

C402	B1
C404	B1
C405	A1
C406	B1
C408	B1
C409	B1
C410	B1
C412	B1
C414	B1
C415	B1
C416	B1
C418	C1
C419	B1
C420	B1
C421	B1
C422	B1
C424	C1
C429	B1
C443	C1
C461	B1
C462	B1
C471	D1
C472	D1
C473	D1
C474	D1
C476	D1
C478	E1
C479	E1
C480	D1
C481	D1
C484	D1
C485	D1
C487	D1
C489	D1
C490	D1
C491	C1
C498	D1
C499	B1

C5..

C501	F3
C505	E4
C507	E3
C508	E3
C509	E3
C510	E3
C511	D2
C514	E3
C515	E3
C516	E3
C517	E3
C519	E3
C521	E3
C523	C 2/3
C524	C3
C525	C3
C527	C2
C528	C2
C529	D2
C530	D2
C531	D2
C532	D2
C533	D2
C535	D2
C536	D2
C537	D2
C538	E4
C539	E4
C540	E4
C541	E4
C542	F4
C543	D3
C544	E3
C547	C3
C562	E3
C563	E3
C564	D2
C565	D2
C566	D3
C567	D3
C575	E3
C576	F3
C580	E4
C581	B3
C593	B3
C594	B3
C595	B3
C596	B3

C7..

C701	E1
C702	E1
C704	E1
C705	E1
C707	E1
C709	E2
C714	E1
C715	E1
C716	E1
C726	E2
C727	E2
C728	E2
C740	F2
C760	E1
C761	F3
C762	F3
C763	F3
C772	E2
C773	E3
C774	E3
C782	E2
C783	E2
C784	E2

IC...

IC101	D1
IC218	D1
IC264	B2
IC266	C1
IC416	C1
IC418	C1
IC481	B2
IC501	E3
IC505	E3
IC599	C3
IC920	F1

D...

D199	B1
D501	D2
D511	D2
D590	B3
D598	B3
D901	E2
D923	E2

QI..

QI03	D3
QI04	C3
QI05	D3

Q1..

Q131	D2
Q132	D2
Q133	E1
Q134	E1
Q135	E1
Q198	B2

Q2..

Q211	D1
Q212	E1
Q213	B2
Q214	C1
Q215	B 1/2
Q216	B2
Q217	B2
Q261	B2
Q262	B2
Q263	B2
Q291	B2
Q292	B2

Q3..

Q399	A1

Q4..

Q410	B1
Q413	C1
Q417	C1
Q423	C1
Q424	C1
Q438	C1
Q439	C1
Q472	E1
Q499	D1

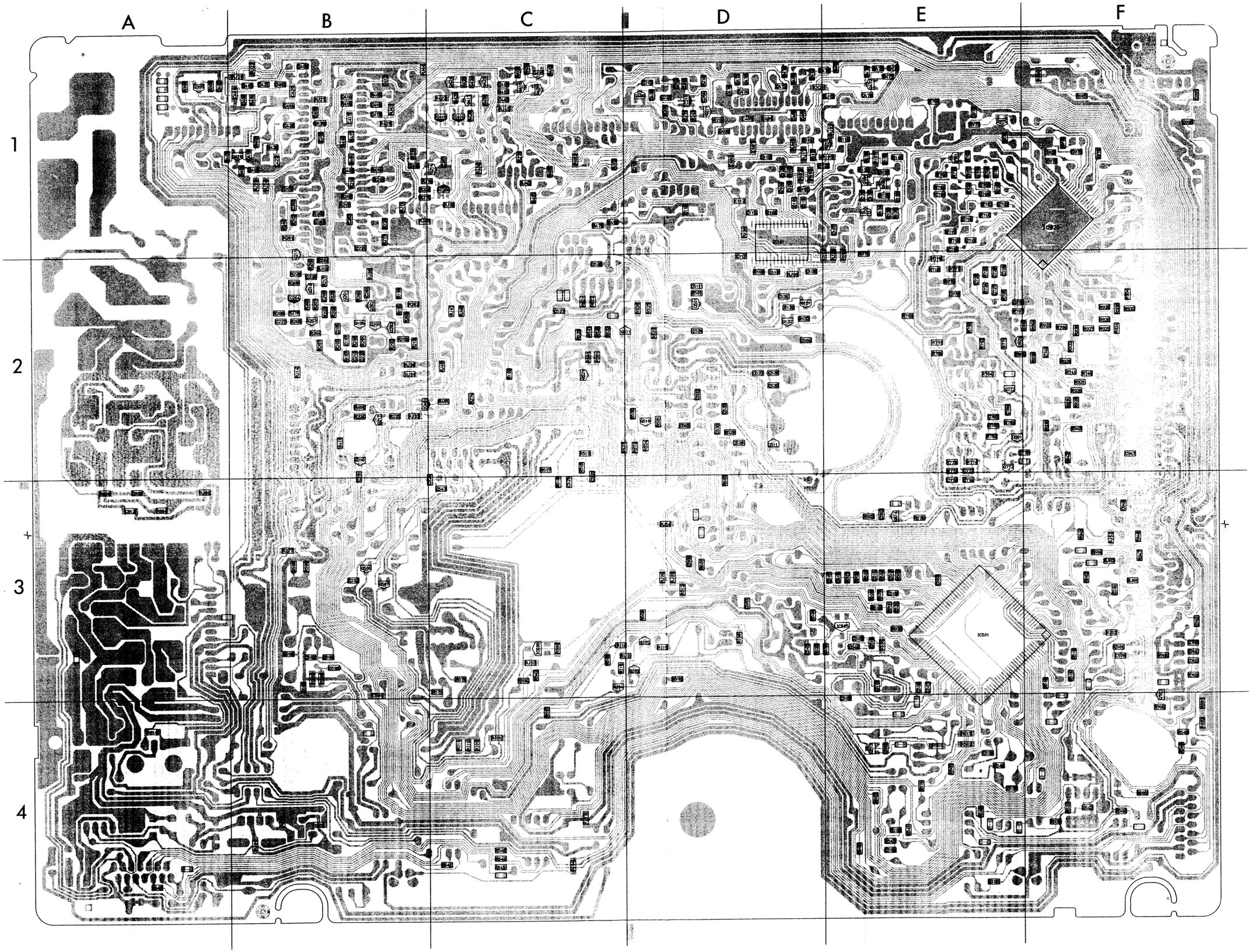
Q5..

Q506	B3
Q507	B3
Q513	E4
Q514	E3
Q510	D2
Q511	C/D 2
Q521	C2

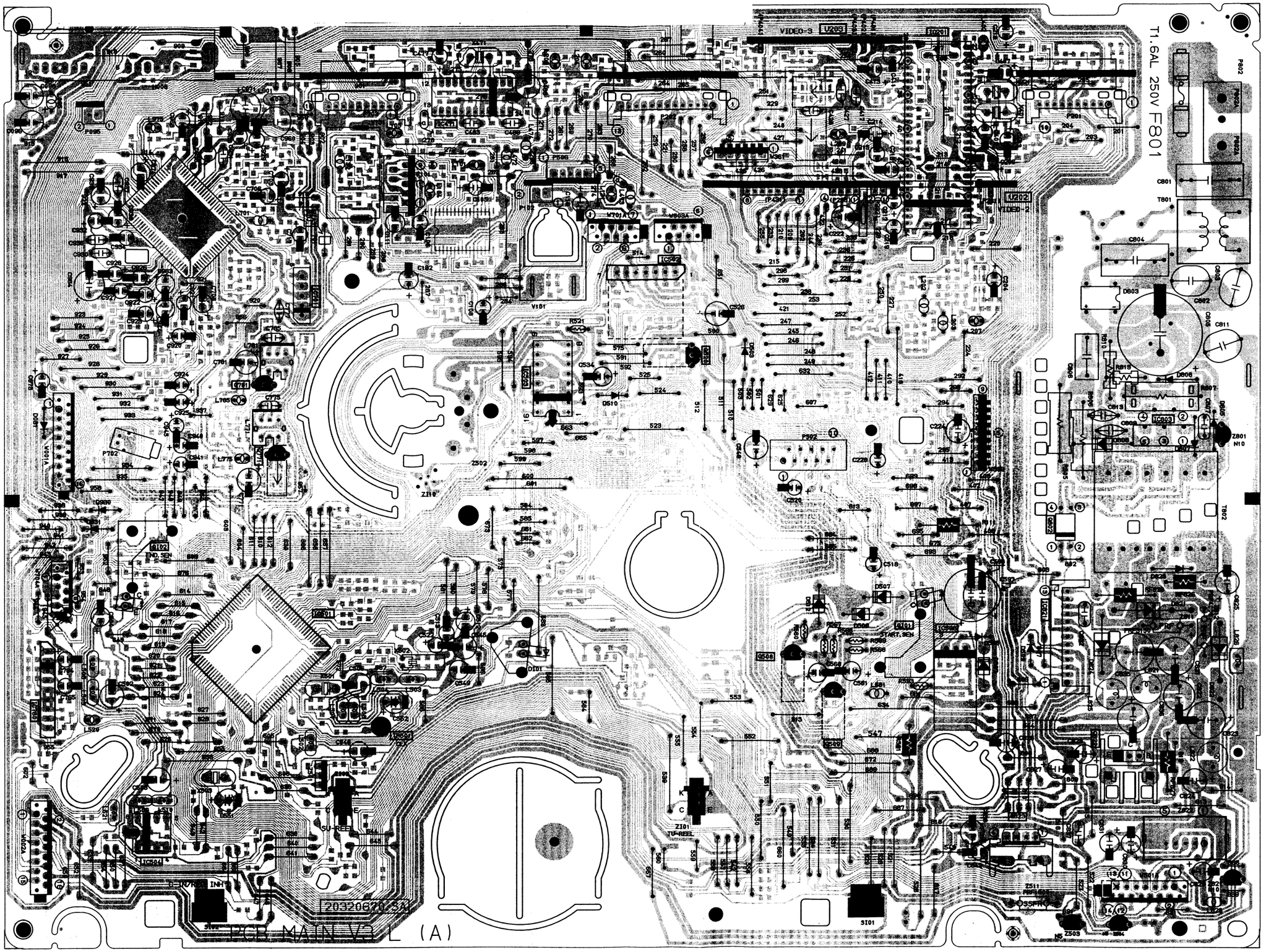
Q...

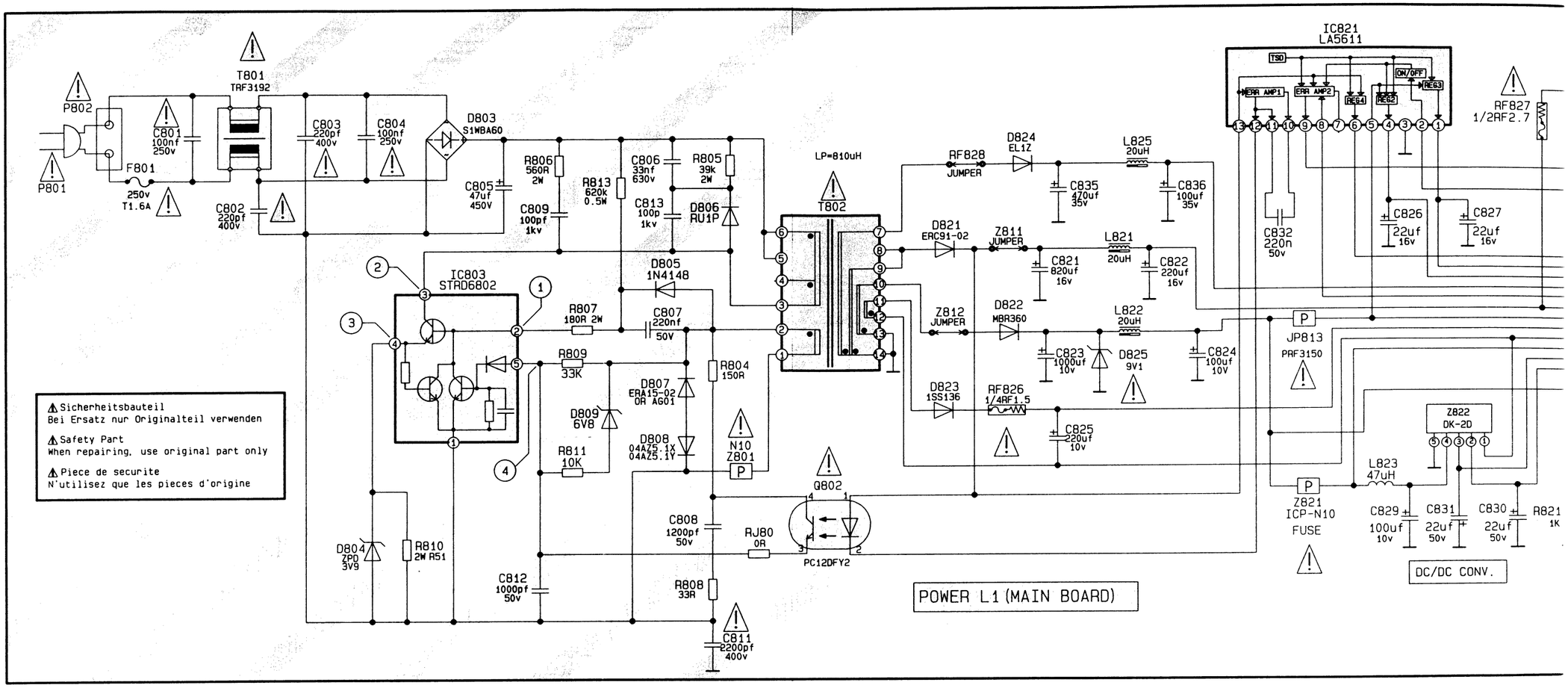
Q761	E1
Q762	F 3/4
Q772	E2
Q773	E2
Q975	E1

Main P.C.B. Solder side • Circuit imprimé de la platine principale (Côté cuivre)• Hauptleiterplatte Lötseite
Piastra principale lato saldature • Platina principal lado del cobre



Main P.C.B. Component side• Circuit imprimé de la platine principale (Côté composants) • Hauptleiterplatte Bestückungsseite
Piastra principale lato componenti • Platina principal lado componentes





⚠ Sicherheitsbauteil
Bei Ersatz nur Originalteil verwenden

⚠ Safety Part
When repairing, use original part only

⚠ Piece de securite
N'utilisez que les pieces d'origine

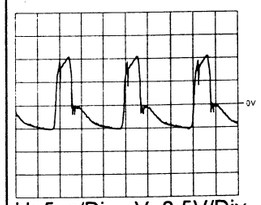
Part of board connected to mains supply.
Partie du chassis reliée au secteur.
Primärseite des Netzteiles.

Important note !
Repairs on SM line section are to be carried out only with isolating transformer.
Measure all voltages and oscillograms on the primary side of the line section only against primary line section ground!
If not otherwise noted, all DC-voltages and oscillograms are measured during STOP mode.

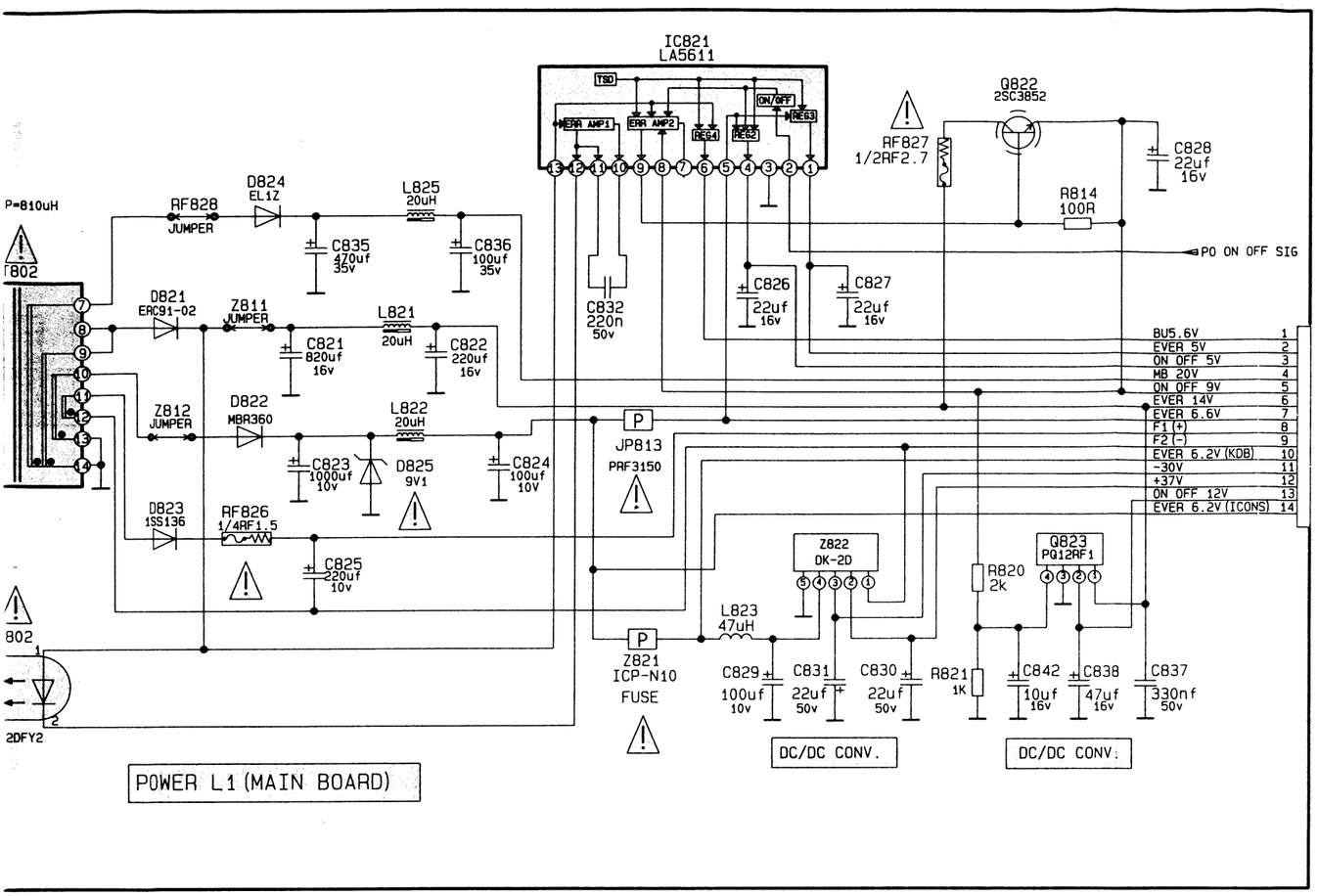
Note importante !
N´effectuer les travaux de maintenance sur la partie reliée au secteur (switch mode) qu´au travers d´un transformateur d´isolement.
Utiliser la masse primaire pour mesurer les tensions et les oscillogrammes de la partie reliée au secteur.
Les tensions continues et les oscilloogrammes sont relevés en mode STOP, sauf indication contraire.

Wichtiger Hinweis !
Service-Arbeiten am SM-Netzteil nur über Regeltrenntrafo durchführen.
Alle Spannungen und Oszillogramme auf der Primärseite des Netzteiles nur gegen die Primärmasse messen!
Wenn nicht anders angegeben, sind die Gleichspannungen und Oszillogramme im STOP-Betrieb gemessen.

(1) Pin 2 IC803



H: 5µs/Div V: 0.5V/Div



POWER L1 (MAIN BOARD)

Z822		Value
1		23.5V
2		38.7V
3		27.0V
4		6.5V
5		0V

Q823		Value
1		13.7V
2		12.0V
3		0V
4		2.9V

IC821		Value
1		5.0V
2		0V
3		0V
4		5.0V
5		6.5V
6		5.6V
7		1.2V
8		8.8V
9		9.4V
10		1.2V
11		12.2V
12		12.8V
13		13.8V

olating transformer.
of the line section only against

e measured during STOP mode.

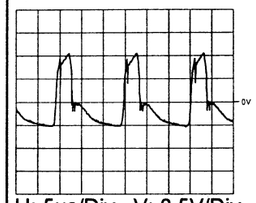
au secteur (switch mode) qu´au travers

oscillogrammes de la partie reliée au

en mode STOP, sauf indication contraire.

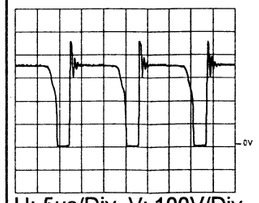
durchführen.
es Netzteiles nur gegen die Primärmasse messen!
und Oszillogramme im STOP-Betrieb gemessen.

(1) Pin 2 IC803



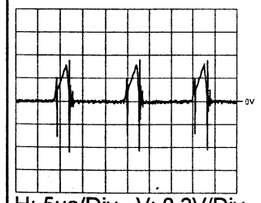
H: 5µs/Div V: 0.5V/Div

(2) Pin 3 IC803



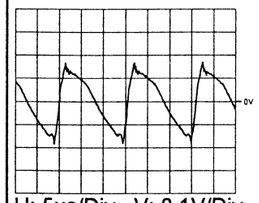
H: 5µs/Div V: 100V/Div

(3) Pin 4 IC803



H: 5µs/Div V: 0.2V/Div

(4) Pin 5 IC803



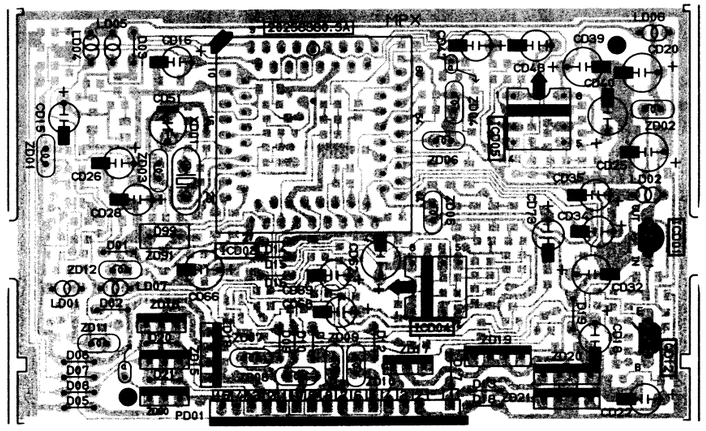
H: 5µs/Div V: 0.1V/Div

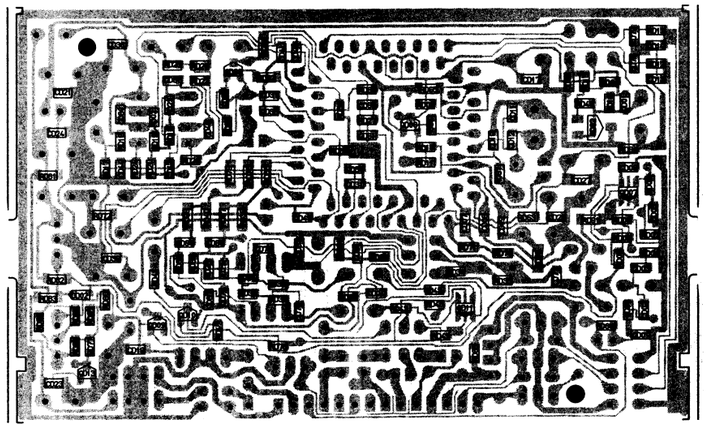
ICD03 Pin Nr.	Voltage
1	NC
2	NC
3	NC
4	NC
5	NC
6	NC
7	NC
8	SDA
9	SCL
10	NC
11	4.8
12	0
13	NC
14	NC
15	NC
16	NC
17	NC

ICD03 Pin Nr.	Voltage
18	2.3
19	NC
20	2.3
21	2.3
22	0
23	0.1
24	1.5
25	1.5
26	4.9
27	0
28	3.8
29	2.6
30	NC
31	3.8
32	0
33	3.8
34	3.8

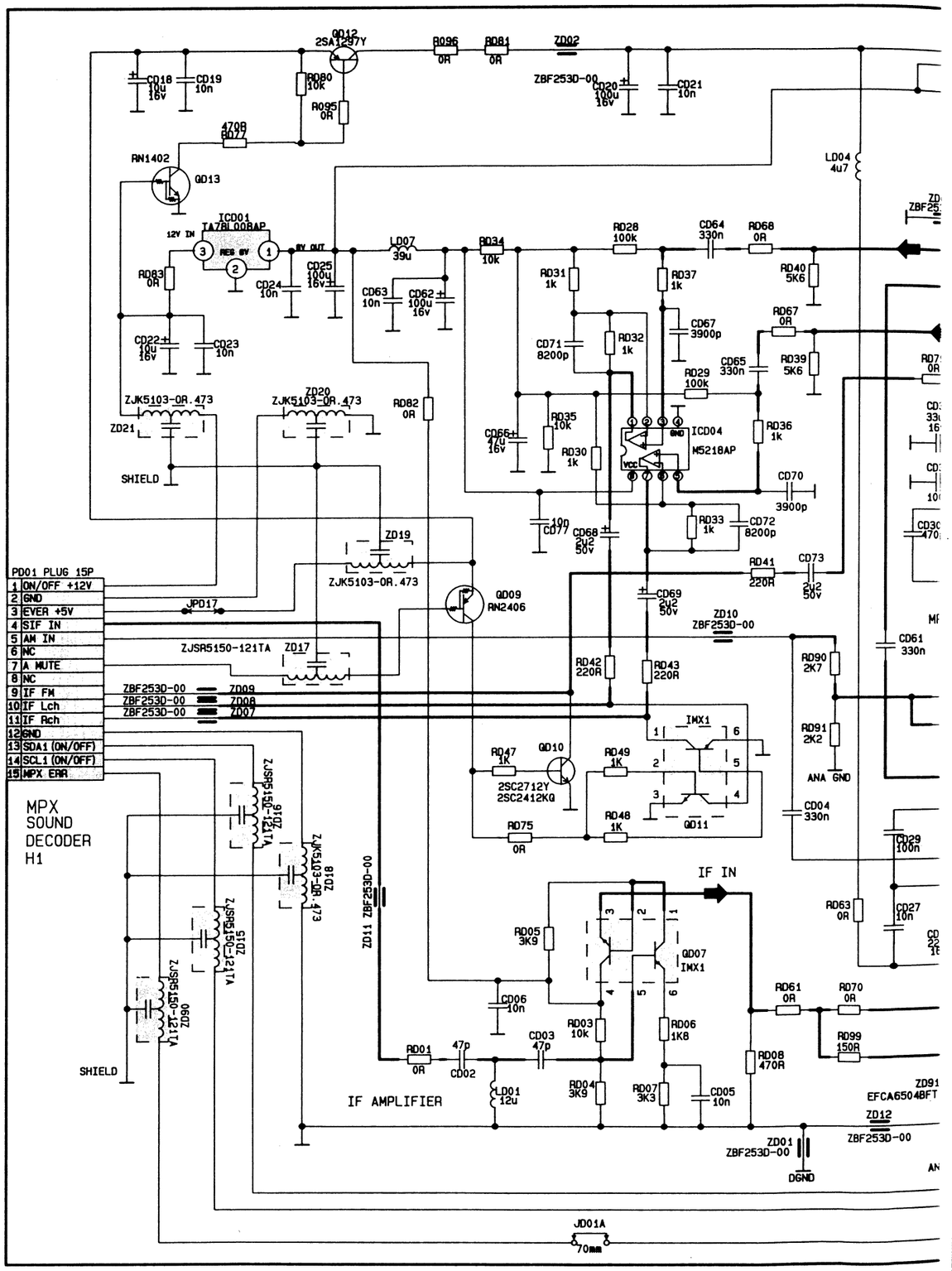
ICD03 Pin Nr.	Voltage
35	0
36	NC
37	NC
38	NC
39	3.8
40	3.8
41	3.8
42	3.8
43	0
44	6.0
45	7.9
46	6.0
47	3.6
48	3.6
49	0
50	3.8
51	NC

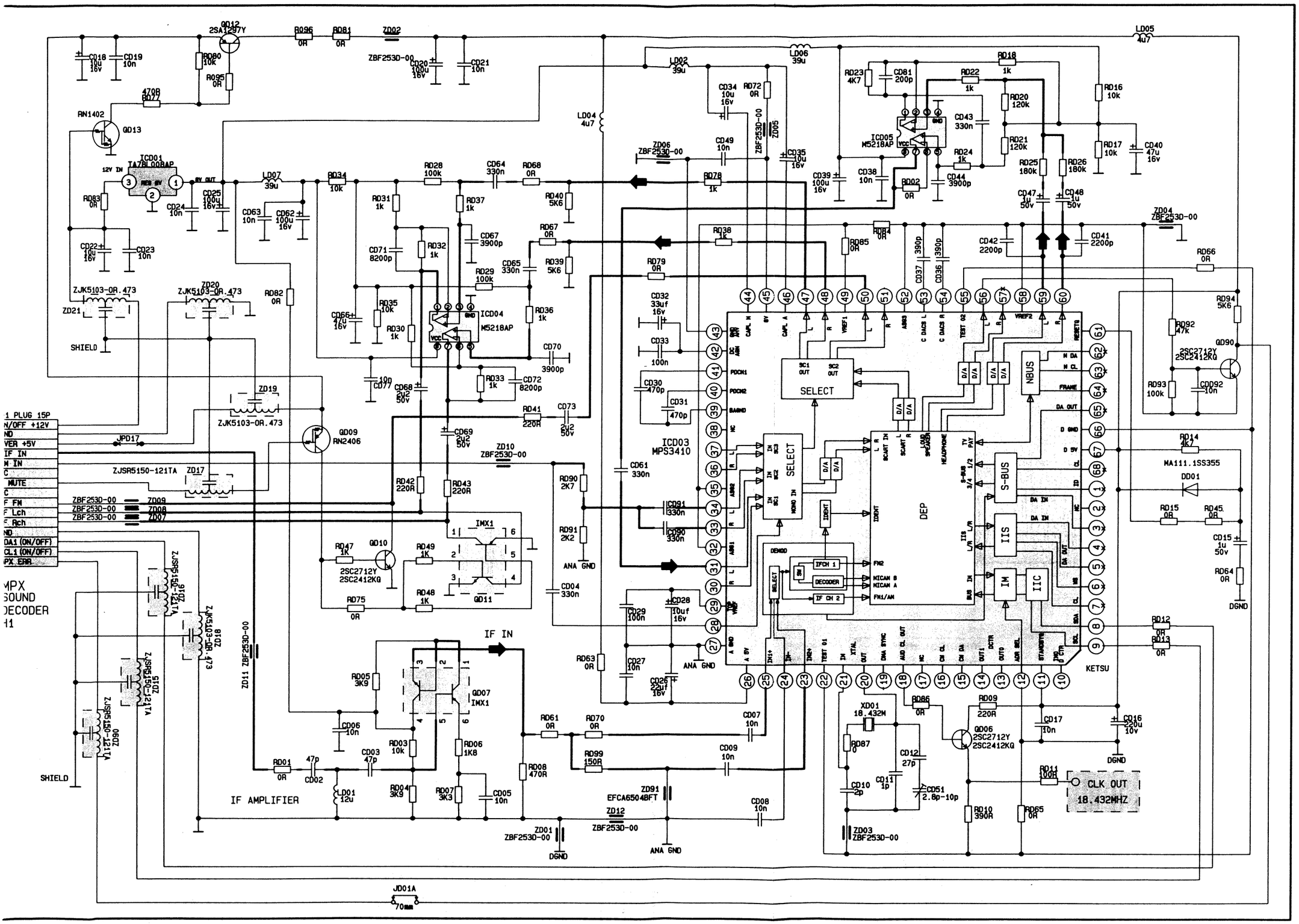
ICD03 Pin Nr.	Voltage
52	0
53	3.8
54	3.8
55	0
56	1.8
57	NC
58	0
59	1.9
60	1.9
61	4.8
62	NC
63	NC
64	NC
65	NC
66	0
67	4.8
68	NC



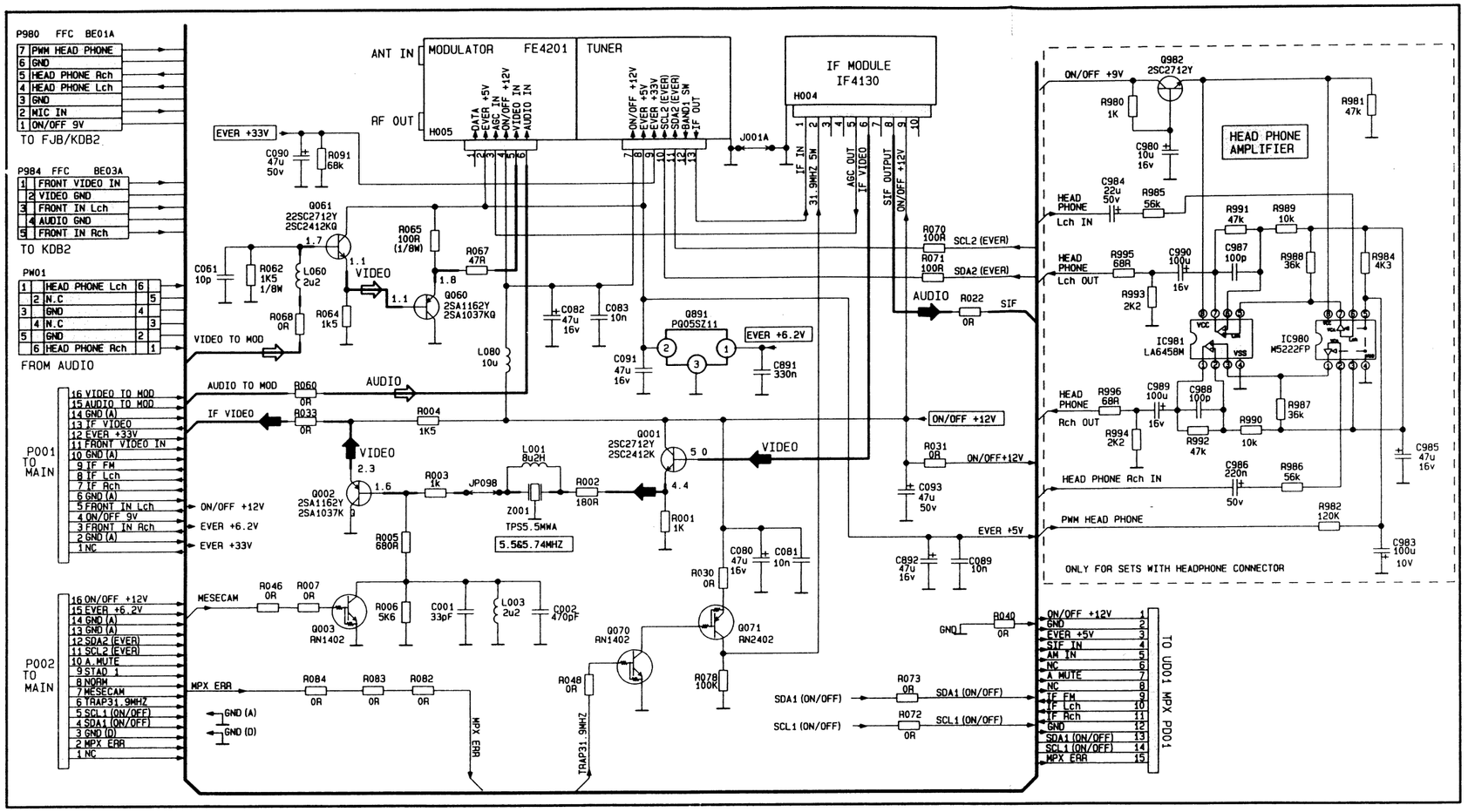


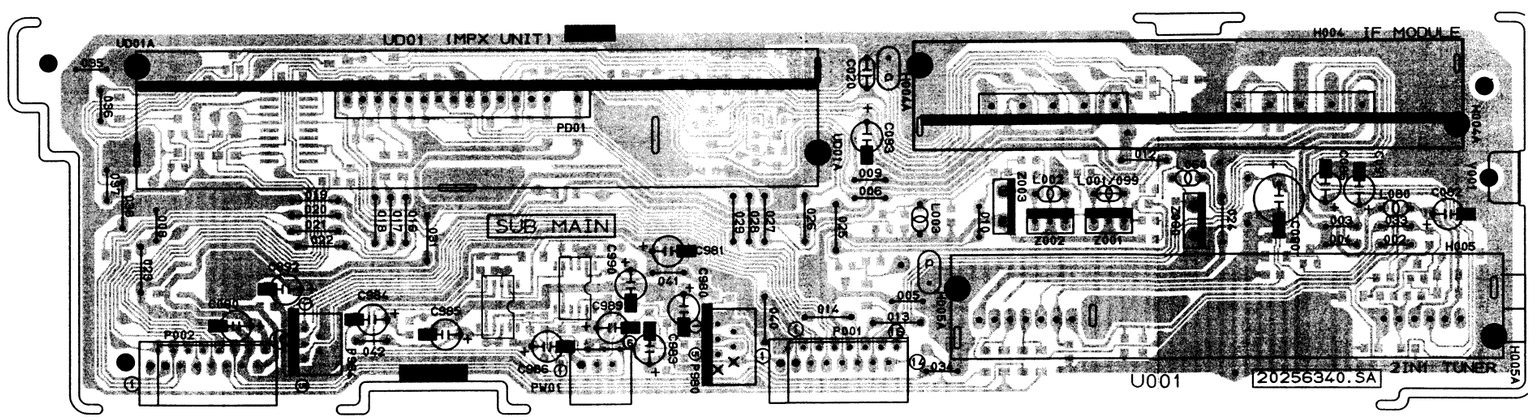
MPX Sound Decoder Board • Stereo Decoder Modul

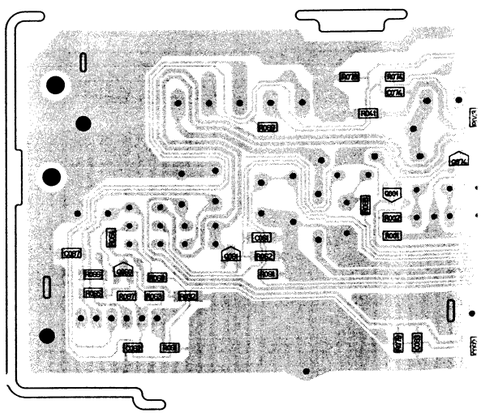



1 PLUG 15P
N/OFF +12V
ND
VER +5V
IF IN
M IN
C
MUTE
C
F FM
F Lch
F Rch
ND
DA1 (ON/OFF)
CL1 (ON/OFF)
PX ENA
MPX
SOUND
DECODER
H1
IF IN
IF AMPLIFIER
SHIELD
SELECT
DEP
KETSU
S-BUS
IIS
IM
IIC
NBUS
SELECT
M5218AP
MPS3410
TA7611CAP
IMX1
2SC2712Y
2SC2412KQ
RN2406
RN1402
2SA1297Y
MA111.1SS355
EFCA6504BFT
XD01
18.432M
CLK OUT
18.432MHZ
ANA GND
DGND
JD01A

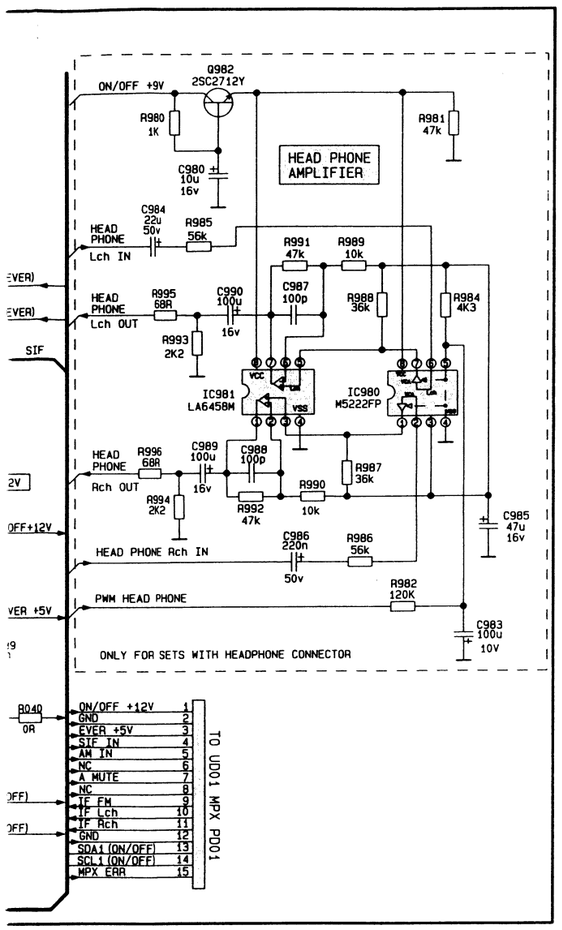
Tuner/modulator (BG) / IF section (BG) • Tuner/modulateur (BG) / FI (BG) • Tuner/Modulator (BG) / ZF (BG)
Tuner/modulatore (BG) / FI (BG) • Tuner/modulador (BG) / FI (BG)

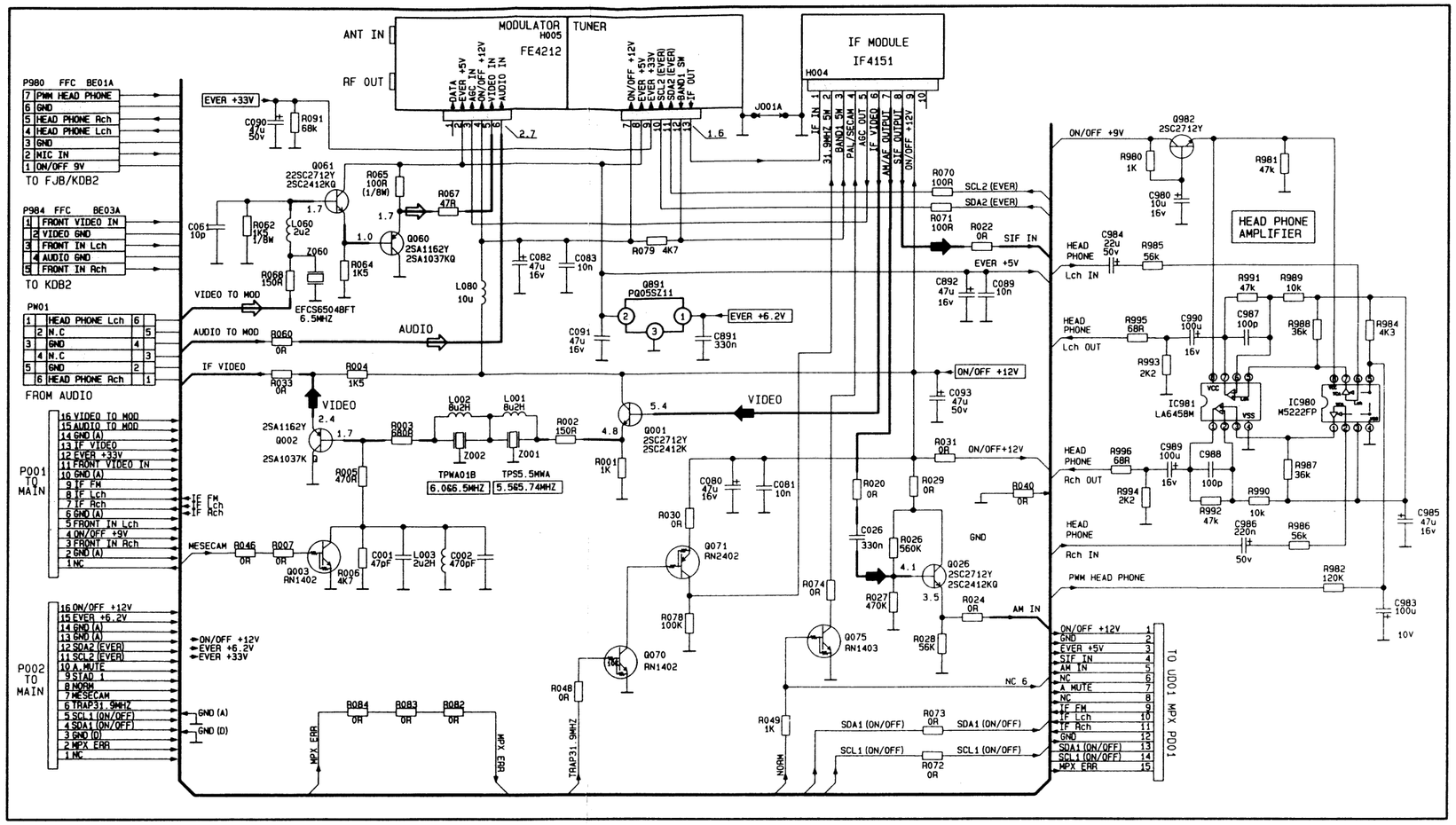


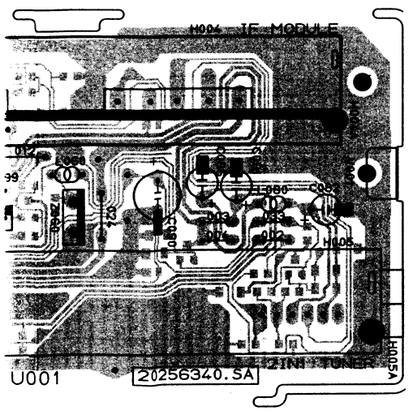


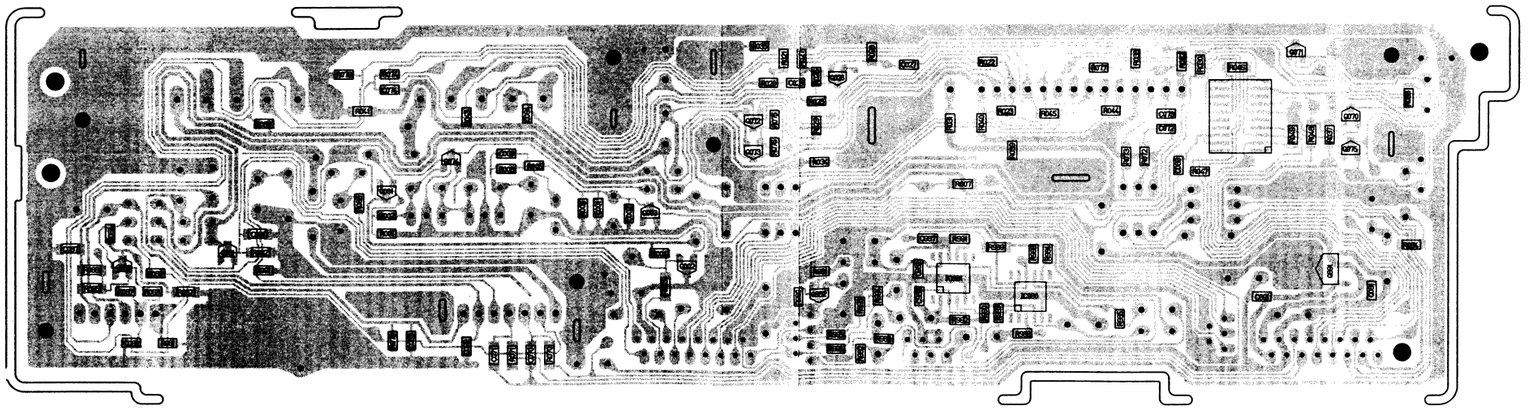


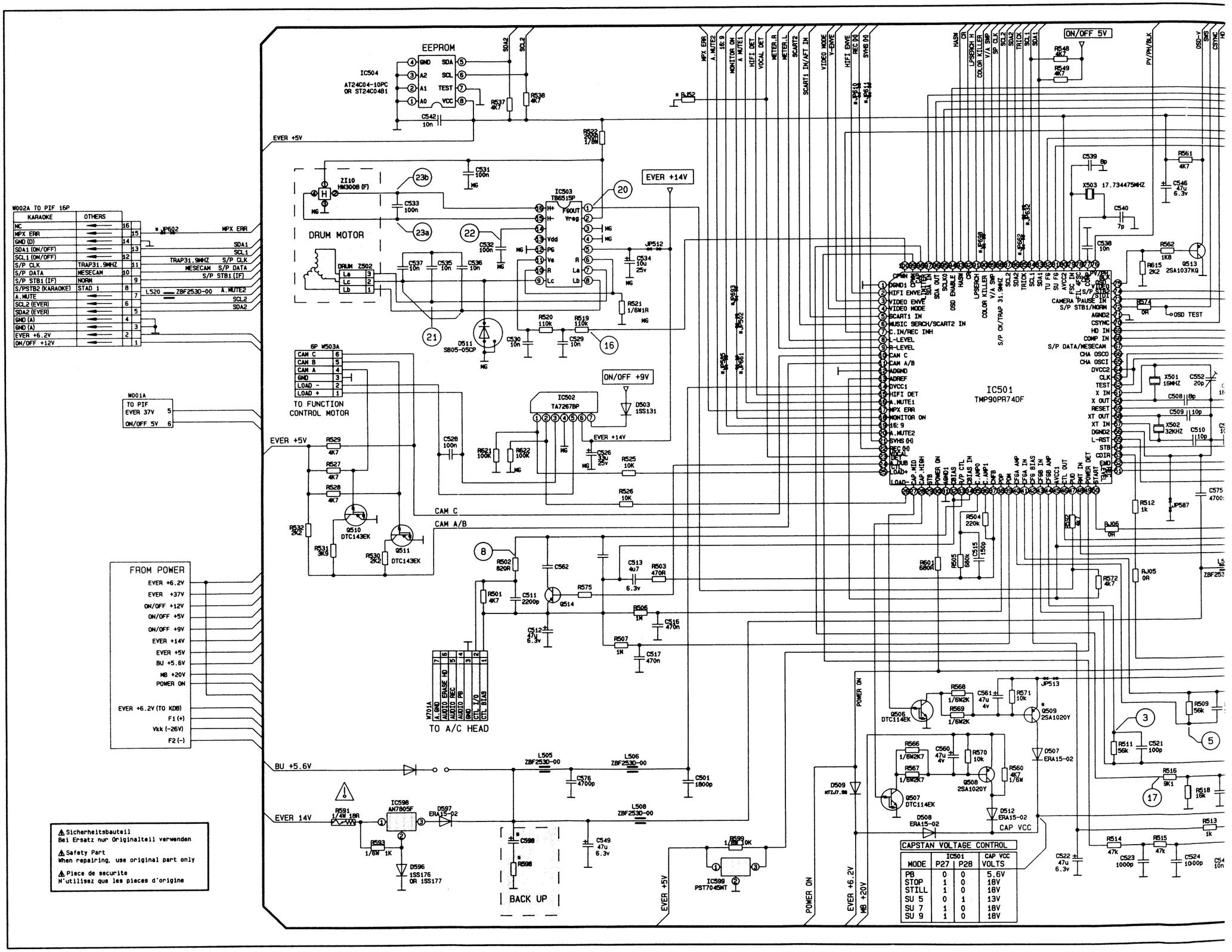
Tuner/modulator (BG/L/DK) / IF section (BG/L/DK) • Tuner/modulateur (BG/L/DK) / FI (BG/L/DK) • Tuner/Modulator (BG/L/DK) / ZF (BG/L/DK)
Tuner/modulatore (BG/L/DK) / FI (BG/L/DK) • Tuner/modulador (BG/L/DK) / FI (BG/L/DK)

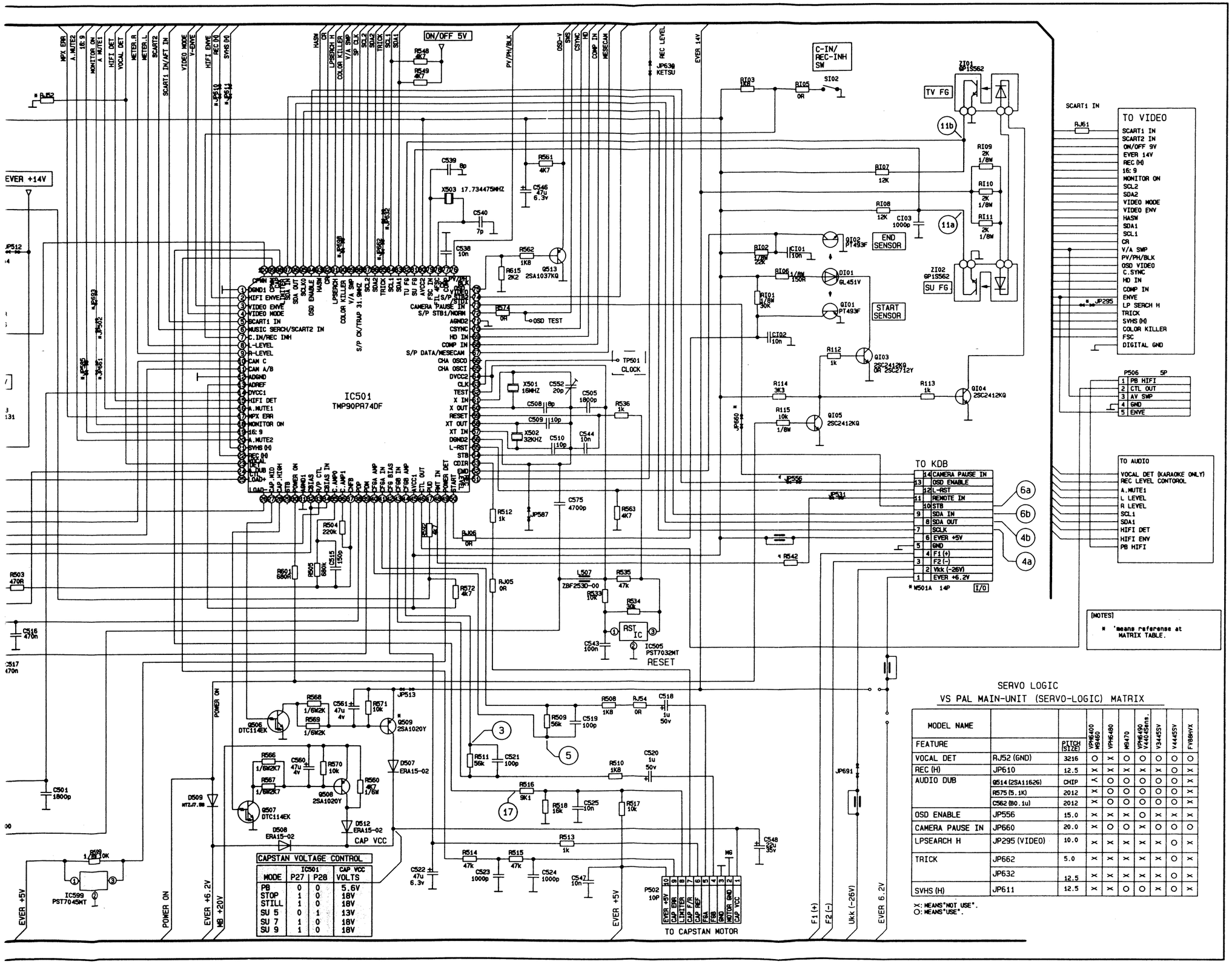






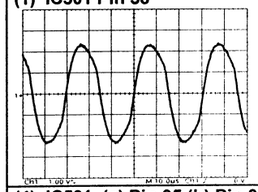



EEPROM
IC504
AT24C04-10PC
OR ST24C04B1
GND
SDA
A2
SCL
A1
TEST
A0
VCC
SDA2
SCL2
R537 4K7
R538 4K7
C542 10n
EVER +5V
R522 200R 1/8W
EVER +14V
ON/OFF 5V
ON/OFF +9V
ON/OFF +12V
ZI10 HM3008 (F)
DRUM MOTOR
DRUM Z502
La
Lc
Lb
C531 100n
C533 100n
C532 100n
C537 10n
C535 10n
C536 10n
C534 10u 25v
R521 1/6W1R
R520 110k
R519 110k
C530 10n
C529 10n
D511 S805-05CP
IC503 TB6519P
FGOUT
Vreg
H+
H-
Vdd
PG
Ve
R
La
Lb
JP512
W002A TO PIF 16P
KARAOKE
OTHERS
NC
MPX ERR
GND (D)
SDA1 (ON/OFF)
SCL1 (ON/OFF)
S/P CLK
TRAP31.9MHZ
S/P DATA
MESECAM
S/P STB1 (IF)
NORM
S/PSTB2 (KARAOKE)
STAD 1
A.MUTE
SCL2 (EVER)
SDA2 (EVER)
GND (A)
GND (A)
EVER +6.2V
ON/OFF +12V
L520 ZBF2530-00
A.MUTE2
SCL2
SDA2
SDA1
SCL1
TRAP31.9MHZ S/P CLK
MESECAM S/P DATA
S/P STB1 (IF)
6P W503A
CAM C
CAM B
CAM A
GND
LOAD -
LOAD +
TO FUNCTION CONTROL MOTOR
W001A
TO PIF
EVER 37V
ON/OFF 5V
IC502
TA7267BP
D503 1SS131
C528 100n
R529 4K7
R527 4K7
R528 4K7
R532 2K2
R531 3K9
R530 2K2
Q510 DTC143EK
Q511 DTC143EK
R521 100K
R522 100K
C526 33u 25v
R525 10K
R526 10K
CAM C
CAM A/B
FROM POWER
EVER +6.2V
EVER +37V
ON/OFF +12V
ON/OFF +5V
ON/OFF +9V
EVER +14V
EVER +5V
BU +5.6V
MB +20V
POWER ON
EVER +6.2V (TO KDB)
F1 (+)
Vkk (-26V)
F2 (-)
M701A
A.GND
AUDIO ERASE HD
AUDIO REC
AUDIO PB
GND
CTL I/O
CTL BIAS
TO A/C HEAD
R502 820R
C562
C513 4u7 6.3v
R503 470R
R501 4K7
C511 2200p
Q514
R575
C512 47u 6.3v
R506 1M
C516 470n
R507 1M
C517 470n
BU +5.6V
L505 ZBF2530-00
L506 ZBF2530-00
C576 4700p
C501 1800p
EVER 14V
R594 1/4W 18R
IC598 AN7805F
D597 ERA15-02
R593 1/6W 1K
D596 1SS176 OR 1SS177
C598
R598
BACK UP
L508 ZBF2530-00
C549 47u 6.3v
R599 10K
IC599 PST7045NT
POWER ON
EVER +6.2V
MB +20V
EVER +5V
IC501
TMP90PR74DF
MPX ERR
A.MUTE2
16:9
MONITOR ON
A.MUTE1
HIFI DET
VOCAL DET
METER.R
METER.L
SCART2
SCART1 IN/AFT IN
VIDEO MODE
Y-CONT
HIFI ENVE
REC IN
SYNS IN
HASH
OR
LPSERCH H
COLOR KILLER
V/A SMP
SP CLK
SCL2
SDA2
TRICK
SCL1
SDA1
R548 4K7
R549 4K7
PV/PH/BLK
OSD-V
SYNS
CSYNC
HD
C539 8p
X503 17.734475MHZ
C540 7p
C546 47u 6.3v
R561 4K7
C538 10n
R562 1KB
R615 2K2
Q513 2SA1037KQ
R574 0R
OSD TEST
DGND1
HIFI ENVELOPE
VIDEO ENVE
VIDEO MODE
SCART1 IN
MUSIC SERCH/SCART2 IN
C.IN/REC INH
L-LEVEL
R-LEVEL
CAM C
CAM A/B
ADGND
ADREF
DVCC1
HIFI DET
A.MUTE1
MPX ERR
MONITOR ON
16: 9
A.MUTE2
SYNS IN
REC IN
VOCAL
DET
SUB
LOAD+
LOAD-
CAP MID
CAP HIGH
STB
POWER ON
MAIN01
D/A CTL
D/A BIAS
C: AMP0
C: AMP1
CHFB
PDP
PDM
CFSA AMP
CFSA IN
CFSB BIAS
CFSB IN
CFSB AMP
AVCC2
CTL OUT
PJC
PWT IN
POWER DET
START
TRACK
SDA1
SCL1
SDA2
SCL2
SP CLK
V/A SMP
COLOR KILLER
LPSERCH
OSD ENABLE
HASH
OR
SCLK0
SDA OUT
SDA IN
CMAN
CMCK
FSC IN
TIL 4FSC
SU F6
SU F5
TU F6
SCL1
SDA1
TRICK
SDA2
SCL2
S/P CK/TRAP 31.9MHZ
COLOR KILLER
V/A SMP
LPSERCH
OSD ENABLE
PV/PH BLK
V SYNC
H SYNC
VIDEO
S/P STB1/NORM
S/P DATA/MESECAM
CAMERA PAUSE IN
AGND2
CSYNC
HD IN
COMP IN
CHA OSCO
CHA OSCI
DVCC2
CLK
TEST
X IN
X OUT
RESET
XT OUT
XT IN
DGND2
L-RST
STB
CDIR
END
DATA
CAP VCC
X501 16MHZ
C552 20p
C508 8p
C509 10p
X502 32KHZ
C510 10p
R512 1k
JP587
C575 4700
R504 220k
R505 680k
C515 150p
R501 680R
RJ06 0R
R572 4K7
RJ05 0R
ZBF253
JP513
R568 1/6W2K
C561 47u 4v
R571 10k
R569 1/6W2K
Q506 DTC114EK
Q509 2SA1020Y
R509 56k
R511 56k
C521 100p
R566 1/6W2K7
C560 47u 4v
R570 10k
R567 1/6W2K7
R560 4K7 1/6W
Q508 2SA1020Y
Q507 DTC114EK
D507 ERA15-02
D509 MTZJ7.5B
D512 ERA15-02
D508 ERA15-02
CAP VCC
R516 9K1
R518 16K
R513 1k
R514 47k
R515 47k
C522 47u 6.3v
C523 1000p
C524 1000p
CAPSTAN VOLTAGE CONTROL
MODE
IC501 P27
IC501 P28
CAP VCC VOLTS
PB 0 0 5.6V
STOP 1 0 18V
STILL 1 0 18V
SU 5 0 1 13V
SU 7 1 0 18V
SU 9 1 0 18V
⚠ Sicherheitsbauteil
Bei Ersatz nur Originalteil verwenden
⚠ Safety Part
When repairing, use original part only
⚠ Piece de securite
N'utilisez que les pieces d'origine


IC501
TMP90PR74DF
IC599
PST7045MT
IC505
PST7032MT
RESET
ON/OFF 5V
EVER +14V
EVER +5V
EVER +6.2V
MB +20V
POWER ON
CAP VCC
C-IN/
REC-INH
SW
TV FG
SU FG
END
SENSOR
START
SENSOR
TO KDB
TO CAPSTAN MOTOR
TO VIDEO
TO AUDIO
SCART1 IN
CAPSTAN VOLTAGE CONTROL
MODE | P27 | P28 | CAP VCC VOLTS
PB | 0 | 0 | 5.6V
STOP | 1 | 0 | 18V
STILL | 1 | 0 | 18V
SU 5 | 0 | 1 | 13V
SU 7 | 1 | 0 | 18V
SU 9 | 1 | 0 | 18V
SERVO LOGIC
VS PAL MAIN-UNIT (SERVO-LOGIC) MATRIX
MODEL NAME | | PITCH (SIZE) | VPH6400 M9460 | VPH6480 | M8470 | VPH6490 V44045ens. | V3445SV | V4445SV | FV88HVX
FEATURE
VOCAL DET | RJ52 (GND) | 3216 | O | × | O | O | O | O | O
REC (H) | JP610 | 12.5 | × | × | × | × | × | O | ×
AUDIO DUB | Q514 (2SA11626) | CHIP | × | O | O | O | O | O | ×
R575 (5.1K) | 2012 | × | O | O | O | O | O | ×
C562 (B0.1u) | 2012 | × | O | O | O | O | O | ×
OSD ENABLE | JP556 | 15.0 | × | × | × | O | × | × | ×
CAMERA PAUSE IN | JP660 | 20.0 | × | O | O | × | O | O | O
LPSEARCH H | JP295 (VIDEO) | 10.0 | × | × | × | × | × | O | ×
TRICK | JP662 | 5.0 | × | × | × | × | × | O | ×
JP632 | 12.5 | × | × | × | × | × | O | ×
SVHS (H) | JP611 | 12.5 | × | × | O | O | × | O | ×
×: MEANS "NOT USE".
O: MEANS "USE".
[NOTES]
* 'means reference at MATRIX TABLE.

Measurements mecha deck control / servo control• Mesures Gestion / asservissements • Messungen Mechaniksteuerung / Servo
Misuri controllo meccanismo / asservimenti• Medidas Servomecanismo / gestión

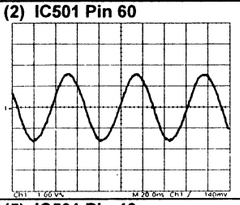
(1) IC501 Pin 58



XT-OUT
(33kHz)

V:1V/div
H:10µs/div

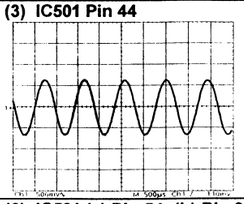
(2) IC501 Pin 60



X-OUT
(16MHz)

V:1V/div
H:0.02µs/div

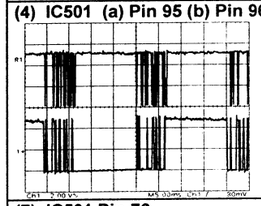
(3) IC501 Pin 44



CFGB AMP

V:500mV/div
H:500µs/div

(4) IC501 (a) Pin 95 (b) Pin 96

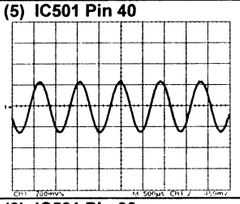


(a) CLK

(b) S DATA

V:2V/div
H:5ms/div

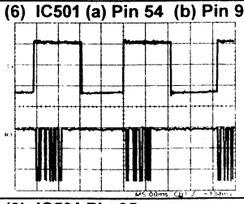
(5) IC501 Pin 40



CFGA.AMP

V:500mV/div
H:500µs/div

(6) IC501 (a) Pin 54 (b) Pin 97

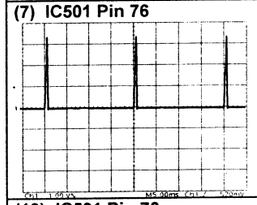


(a) STB

(b) SDA IN

V:2V/div
H:5ms/div

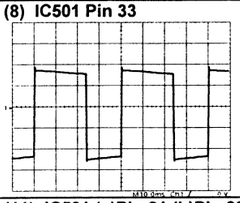
(7) IC501 Pin 76



PV/PH/BLK
STILL

V:1V/div
H:5ms/div

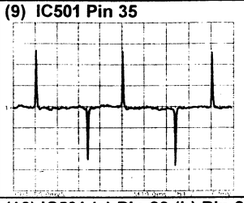
(8) IC501 Pin 33



R/P CTL
(REC)

V:1V/div
H:10ms/div

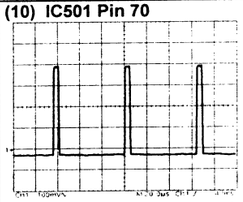
(9) IC501 Pin 35



C AMP0
(PB)

V:500mV/div
H:10ms/div

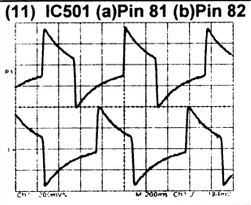
(10) IC501 Pin 70



CSYNC

V:1V/div
H:20µs/div

(11) IC501 (a)Pin 81 (b)Pin 82

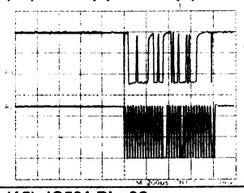


(a) SU FG

(b) TU FG

V:2V/div
H:200ms/div

(12) IC501 (a) Pin 83 (b) Pin 84

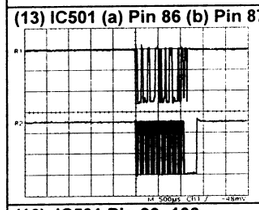


(a) SDA1

(b) SCL1

V:2V/div
H:200µV/div

(13) IC501 (a) Pin 86 (b) Pin 87

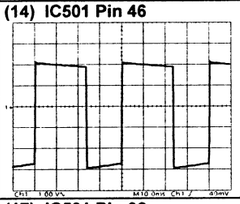


(a) SDA2

(b) SCL2

V:2V/div
H:500µs/div

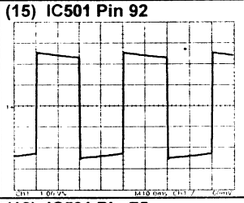
(14) IC501 Pin 46



CTL OUT

V:1V/div
H:10ms/div

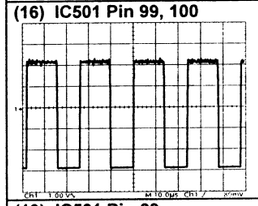
(15) IC501 Pin 92



CR

V:1V/div
H:10ms/div

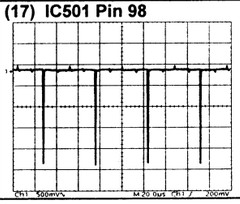
(16) IC501 Pin 99, 100



CPWM

V:1V/div
H:10µs/div

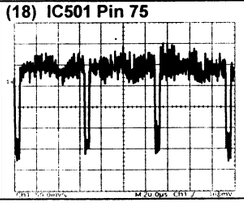
(17) IC501 Pin 98



CAP

V:500mV/div
H:20µs/div

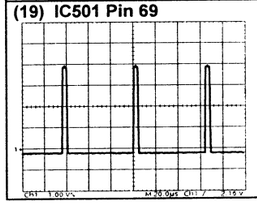
(18) IC501 Pin 75



OSD
VIDEO

V:50mV/div
H:20µs/div

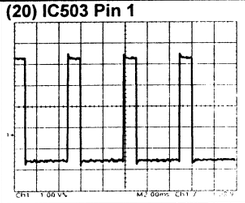
(19) IC501 Pin 69



HD IN

V:1V/div
H:20µs/div

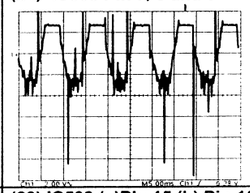
(20) IC503 Pin 1



FoOUT

V:1V/div
H:2ms/div

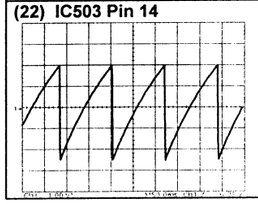
(21) IC503 Pin 7, 8 and 9



La, Lb, Lc

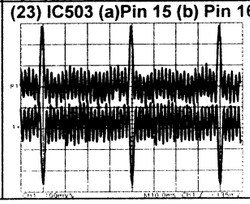
V:2V/div
H:5ms/div

(22) IC503 Pin 14



V:1V/div
H:50ms/div

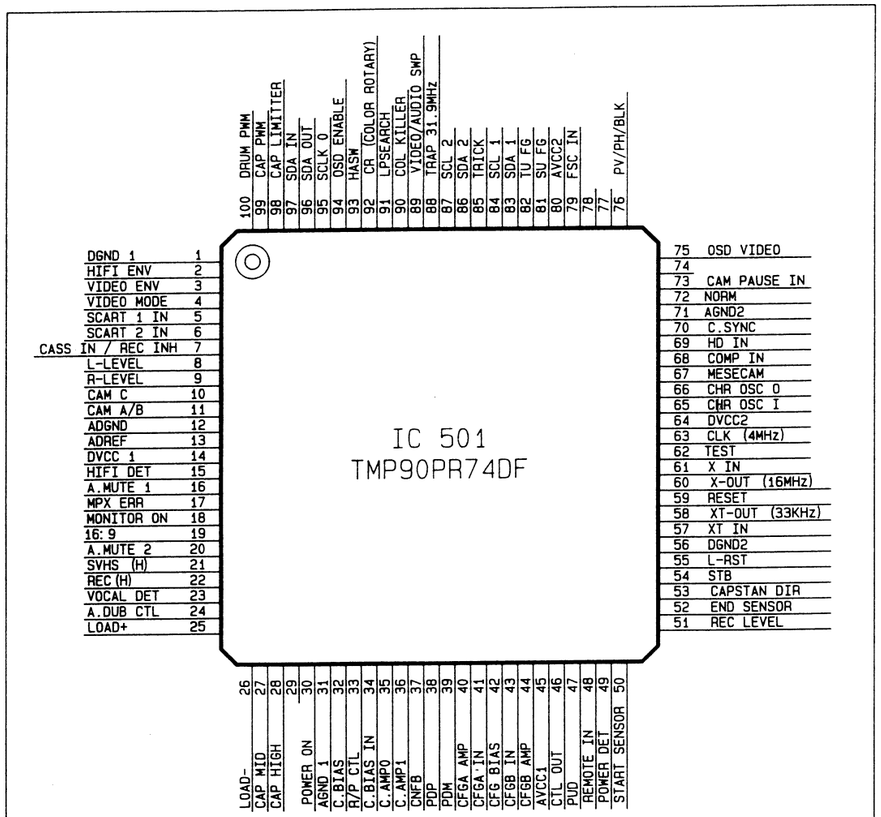
(23) IC503 (a)Pin 15 (b) Pin 16



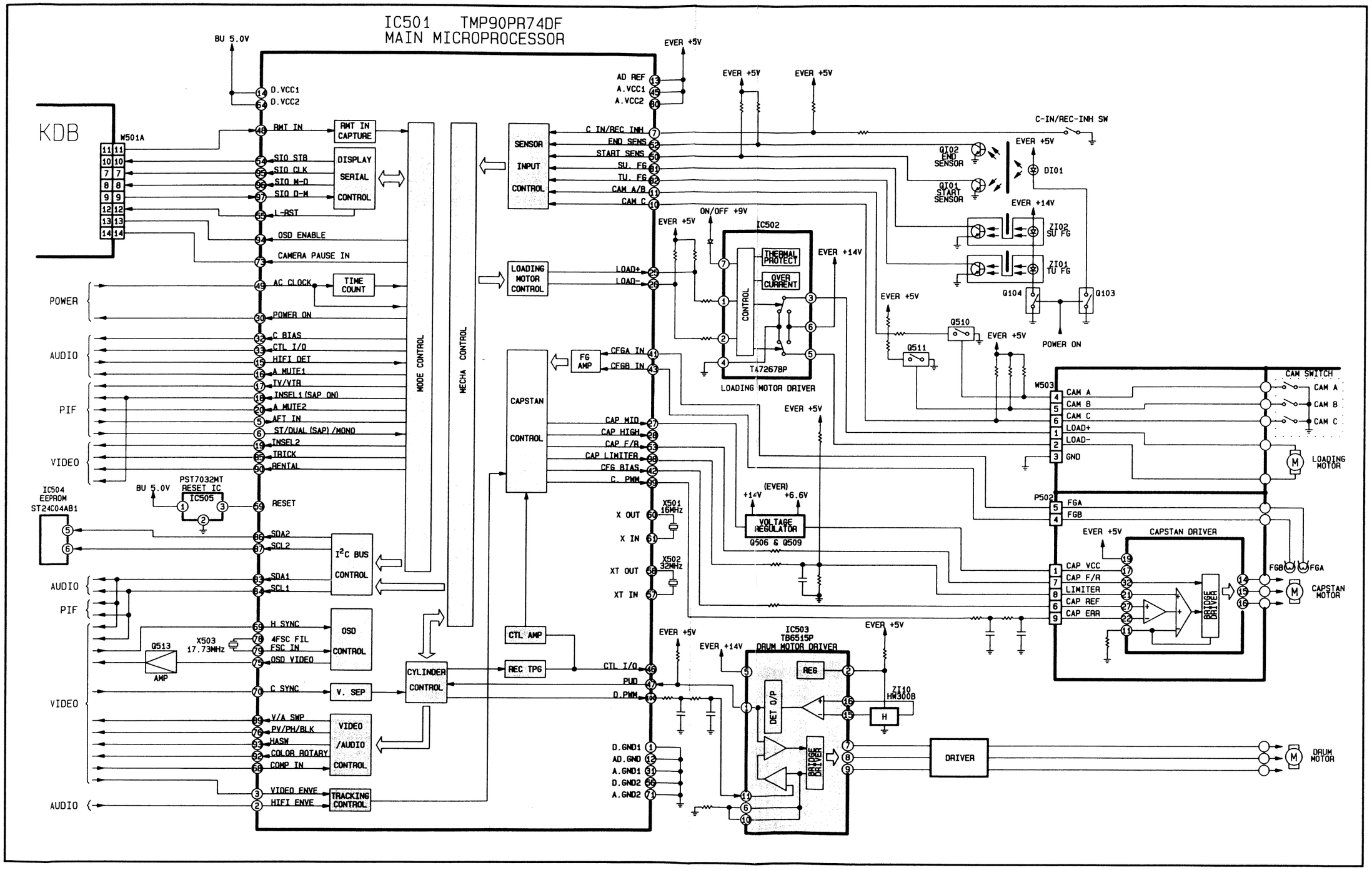
(a) H-

(b) H+

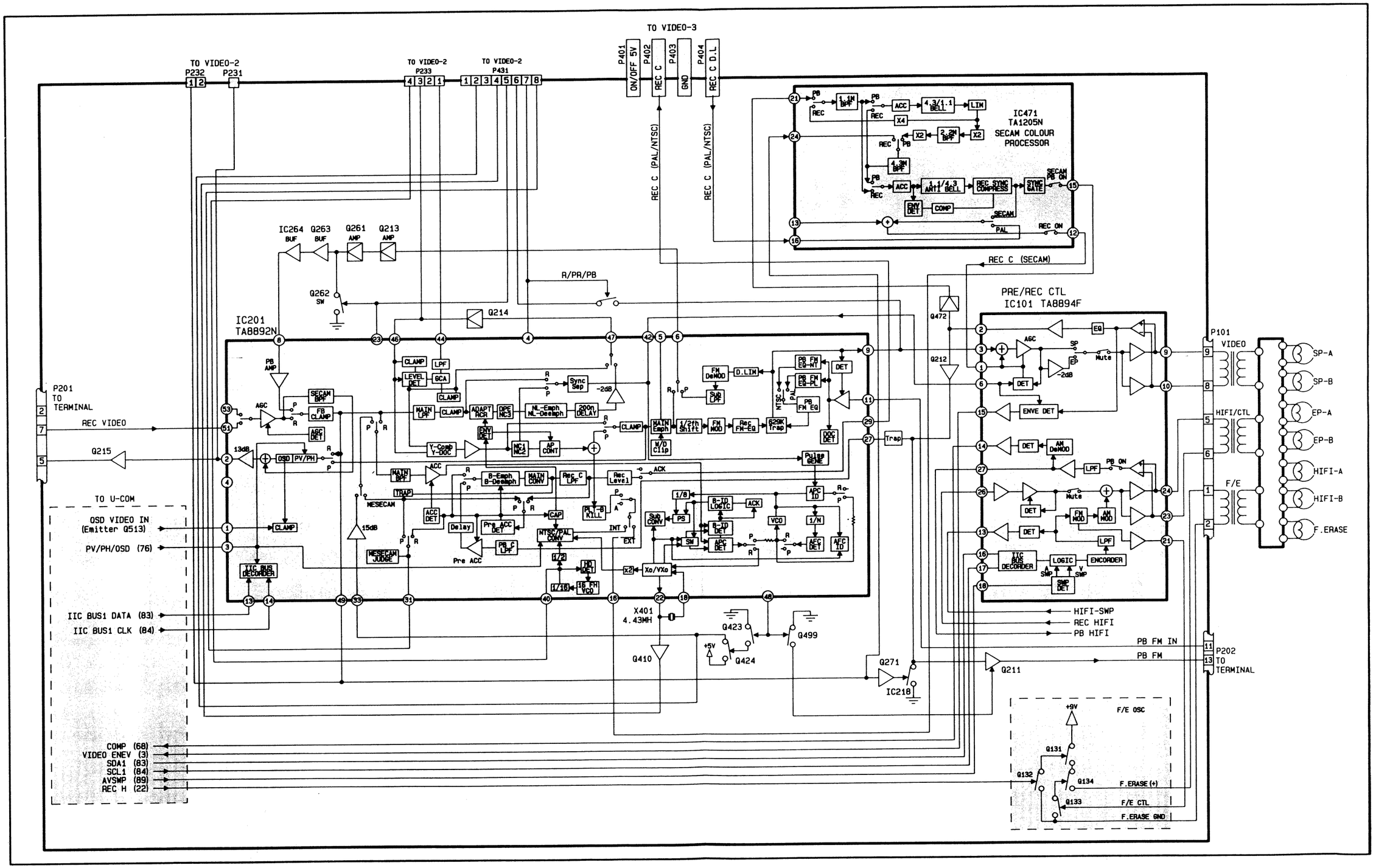
V:100mV/div
H:10ms/div



Block diagram mecha deck control / servo control• Schéma synoptique Gestion / Asservissements• Blockschaltbild Mechaniksteuerung / Servo
Schema a blocchi controllo meccanismo / asservimenti• Esquema de bloques Servomecanismo / gestión

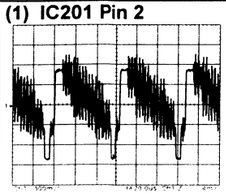


Block diagram video signal processing• Schéma synoptique traitement video• Blockschaltbild Video Signalverarbeitung
Schema a blocchi elaborazione video• Esquema de bloques tratamiento vídeo



Measurements video signal processing• Mesures traitement video • Messungen Video Signalverarbeitung Misuri elaborazione video • Medidas tratamiento vídeo

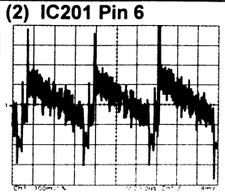
(1) IC201 Pin 2



PLAY

V:500mV/div
H:20µs/div

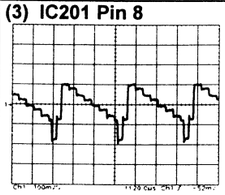
(2) IC201 Pin 6



PLAY

V:100mV/div
H:20µs/div

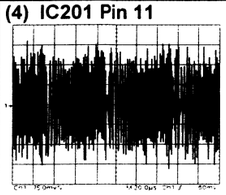
(3) IC201 Pin 8



PLAY

V:100mV/div
H:20µs/div

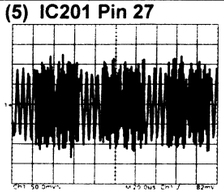
(4) IC201 Pin 11



PLAY

V75mV/div
H:20µs/div

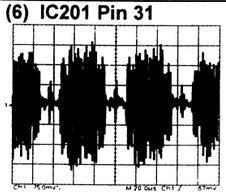
(5) IC201 Pin 27



PLAY

V:50mV/div
H:20µs/div

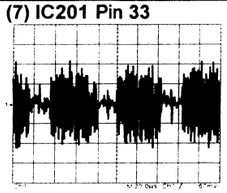
(6) IC201 Pin 31



PLAY

V:75mV/div
H:20µs/div

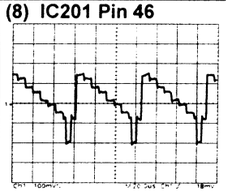
(7) IC201 Pin 33



PLAY

V:100mV/div
H:20µs/div

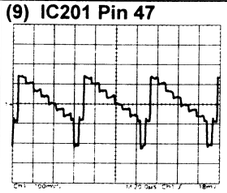
(8) IC201 Pin 46



PLAY

V:100mV/div
H:20µs/div

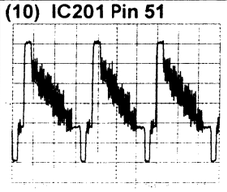
(9) IC201 Pin 47



PLAY

V:200mV/div
H:20µs/div

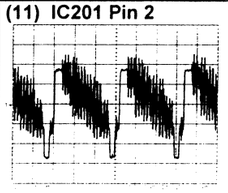
(10) IC201 Pin 51



EE/REC

V:200mV/div
H:20µs/div

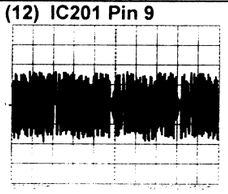
(11) IC201 Pin 2



REC (SP)

V:500mV/div
H:20µs/div

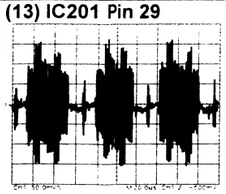
(12) IC201 Pin 9



REC

V:200mV/div
H:20µs/div

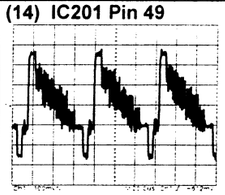
(13) IC201 Pin 29



REC

V:50mV/div
H:20µs/div

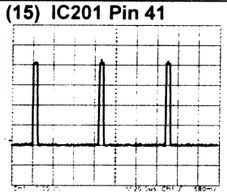
(14) IC201 Pin 49



REC

V:100mV/div
H:20µs/div

(15) IC201 Pin 41



PLAY

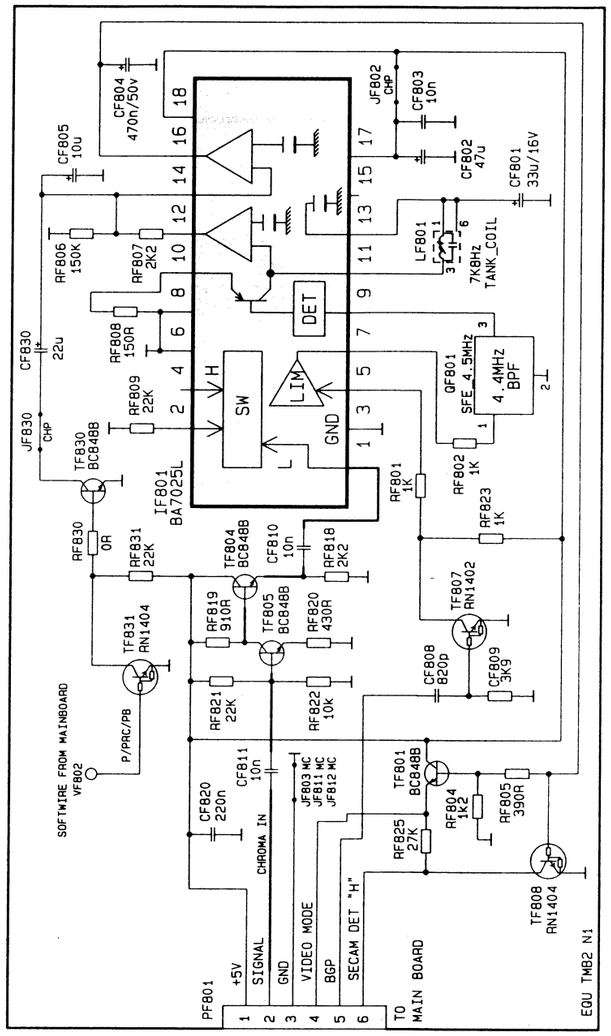
V:1V/div
H:20µs/div

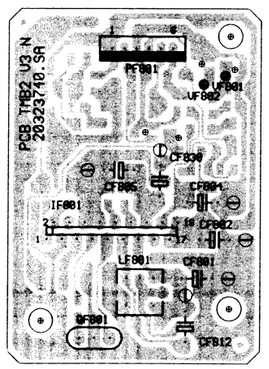
MAIN VIDEO			MODE	
LOC	PIN	PB	REC	EE
IC201	1	2.8	2.8	2.8
	2	2.1	2.1	2.2
	3	1.6	1.6	1.6
	4	0	4.1	4.1
	5	2.6	2.5	2.5
	6	2.7	2.6	2.6
	7	0	0	0
	8	2.9	2.8	2.9
	9	2.2	1.8	1.8
	10	0	0	0
	11	3.1	3.1	3.1
	12	4.8	4.9	4.8
	13	4.8	4.8	4.9
	14	4.8	4.8	4.8
	15	0	0	0
	16	2.1	1.2	1.2
	17	3.7	3.8	3.8
	18	1.8	2.2	2.2

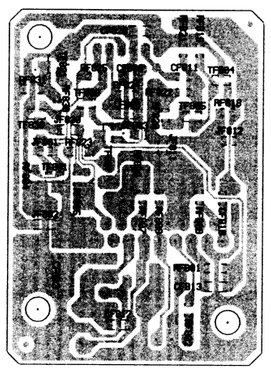
MAIN VIDEO		MODE		
LOC	PIN	PB	REC	EE
IC201	19	2.8	2.8	2.8
	20	1.9	2.2	2.2
	21	2.8	2.8	2.7
	22	2.3	2.8	2.8
	23	3.7	3.7	3.7
	24	2.9	2.8	2.8
	25	2.8	2.8	2.8
	26	0.8	0.9	0.8
	27	3.0	2.7	2.7
	28	4.8	4.9	4.9
	29	1.7	1.5	1.5
	30	2.7	1.9	1.8
	31	1.5	1.5	1.5
	32	1.6	1.8	1.8
	33	2.9	2.9	2.9
	34	2.5	2.5	2.5
	35	4.8	4.8	4.8
	36	3.0	2.5	2.5

MAIN VIDEO		MODE		
LOC	PIN	PB	REC	EE
IC201	37	2.1	2.2	2.1
	38	2.1	2.0	2.1
	39	1.7	0.4	0.3
	40	0.9	1.0	0.7
	41	0.4	0.4	0.4
	42	0.5	0.5	0.4
	43	2.5	2.5	2.5
	44	4.1	4.1	4.1
	45	2.7	2.7	2.7
	46	3.4	3.4	3.5
	47	1.6	1.5	1.5
	48	0.2	0.2	0.2
	49	3.8	1.5	1.5
	50	3.5	3.5	3.5
	51	2.2	2.2	2.2
	52	2.5	2.4	2.4
	53	2.2	2.2	2.2
	54	4.9	4.8	4.9

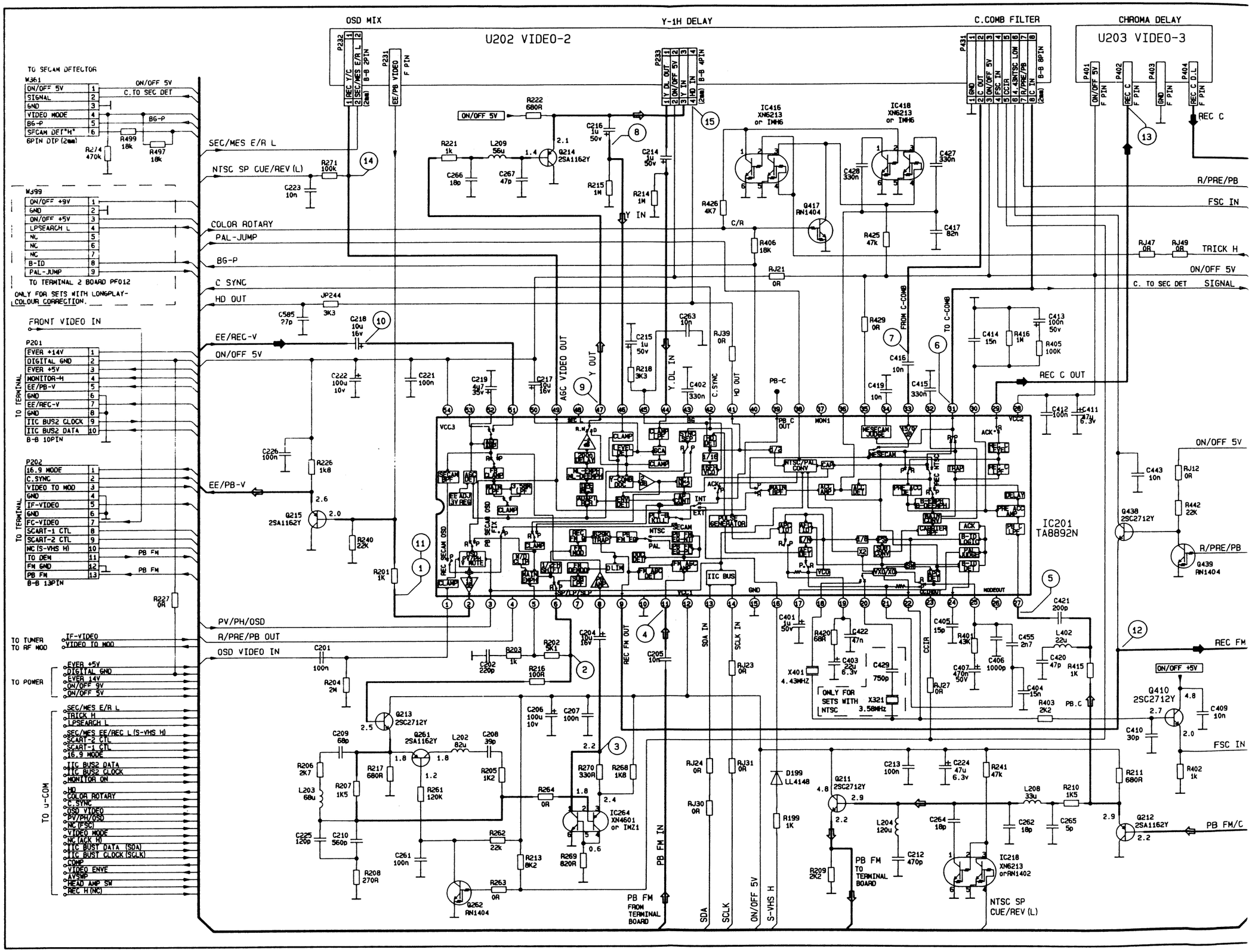
Secam detection sub board• Platine détecteur Secam • Secam Detector Sub Modul Piastra rivelazione Secam • Platina detector Secam







Video signal processing• Traitement Luminance / Chrominance• Video Signalverarbeitung
Elaborazione video• Tratamiento vídeo



DELAY

C.COMB FILTER

CHROMA DELAY

U203 VIDEO-3

IC201
TA8892N

IC101
TA8894AF

PRE/REC CTL

IC416
XN6213
or IMH6

IC418
XN6213
or IMH6

Q417
RN1404

Q438
2SC2712Y

Q439
RN1404

Q410
2SC2712Y

Q211
2SC2712Y

Q212
2SA1162Y

IC218
XN6213
orRN1402

Q131
2SA1162Y

Q132
RN1404

Q133
RN1404

Q134
2SA1162Y

REC C

R/PRE/PB

FSC IN

ON/OFF 5V

TRICK H

SIGNAL

C. TO SEC DET

PB FM/C

REC FM

REC C OUT

C SYNC

VIDEO ENV

COMP

SDA

SCLK

AVSWP

HEAD AMP SW

ENVE

TO P506
PIN 5

PB HIFI

REC HIFI

HIFI-SWP

TO AUDIO

FROM C-COMB

TO C-COMB

PB FM
TO
TERMINAL
BOARD

NTSC SP
CUE/REV (L)

ONLY FOR
SETS WITH
NTSC

X401
4.43MHZ

X321
3.58MHz

ONLY
V4445SV

F/E OSC

F.ERASE (+)

F.ERASE GND

F/E CTL

REC (H)

ON/OFF 9V

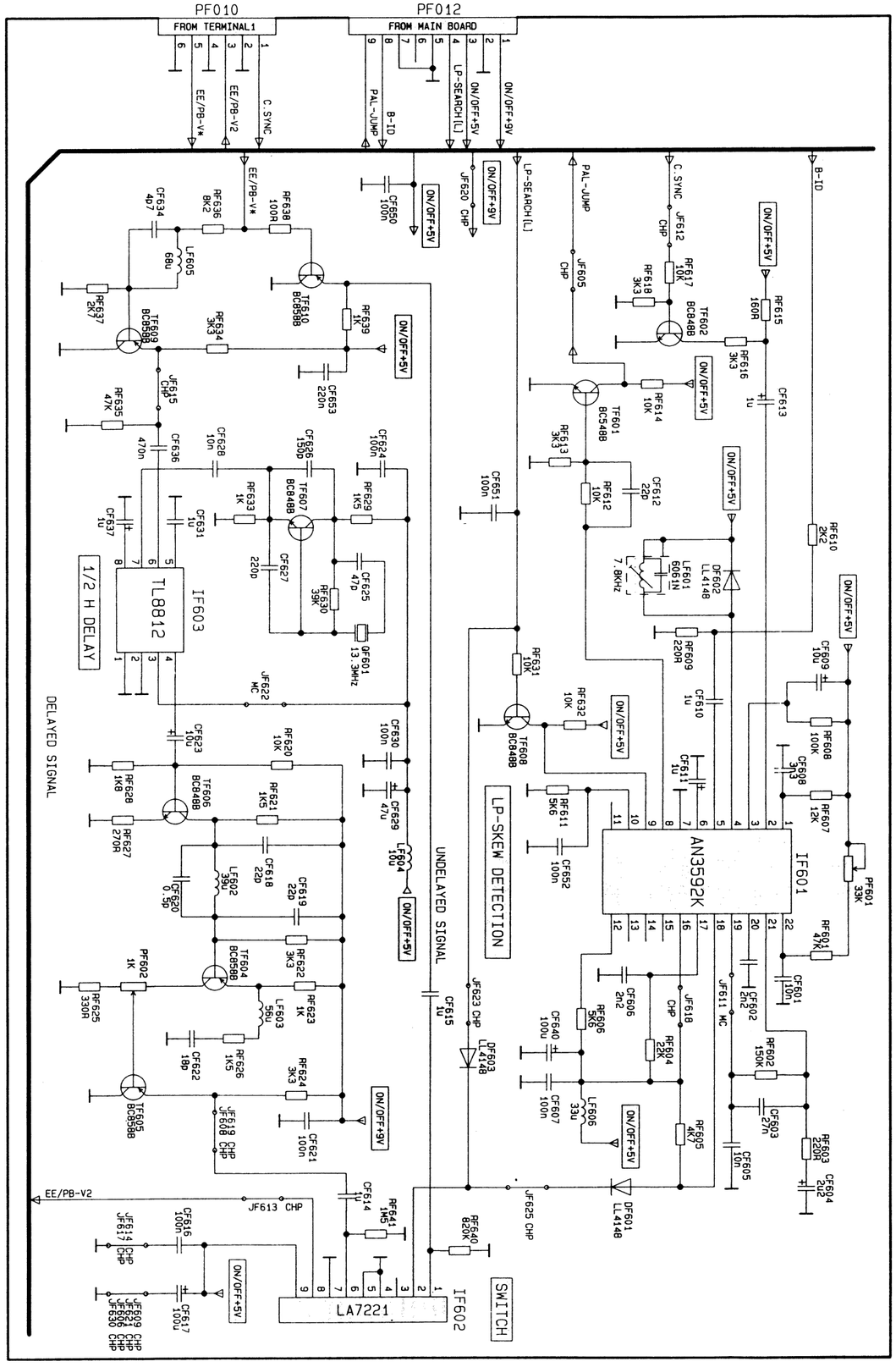
P101 TO CYLINDER

P102 WHT 2 PIN

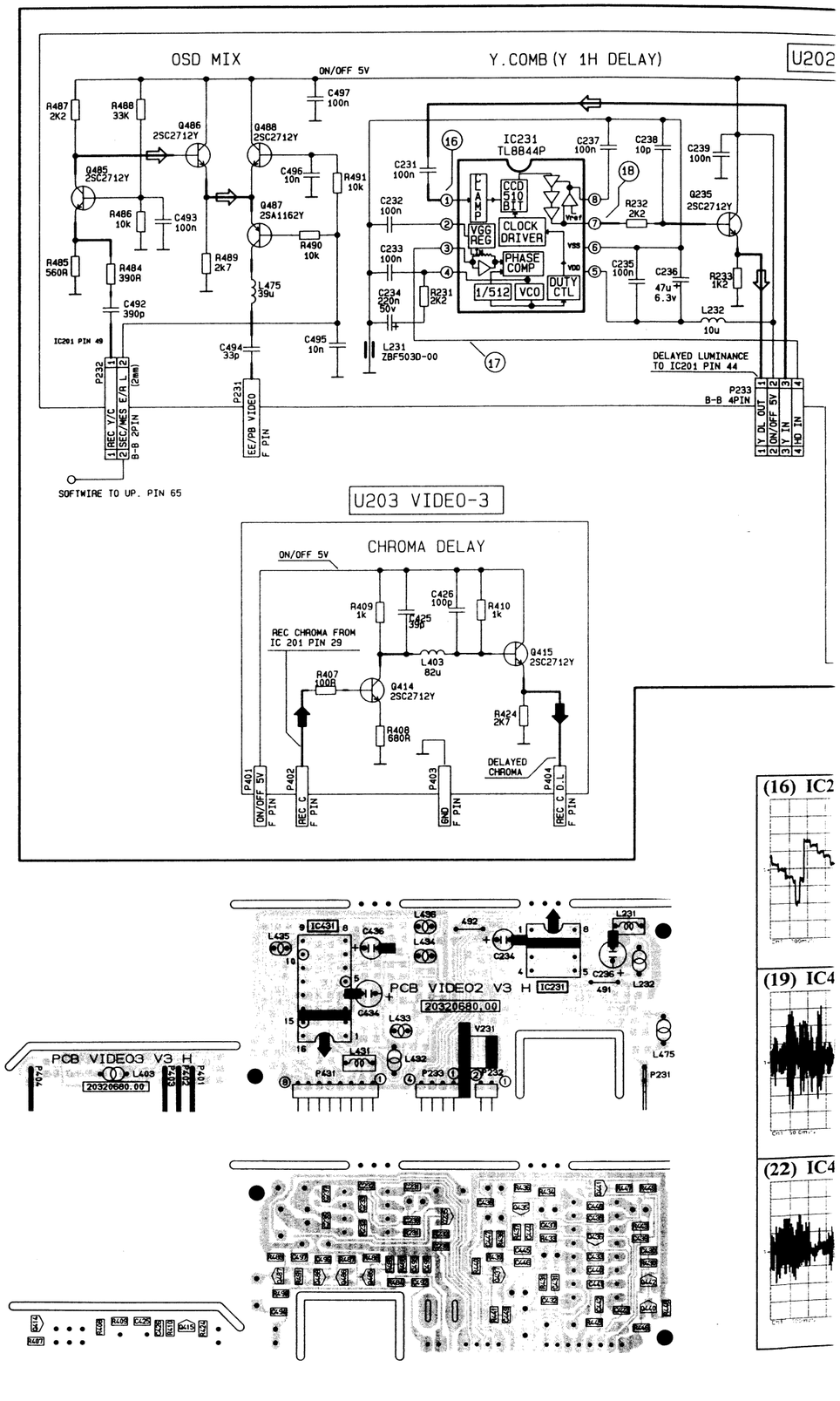
TO CYLINDER

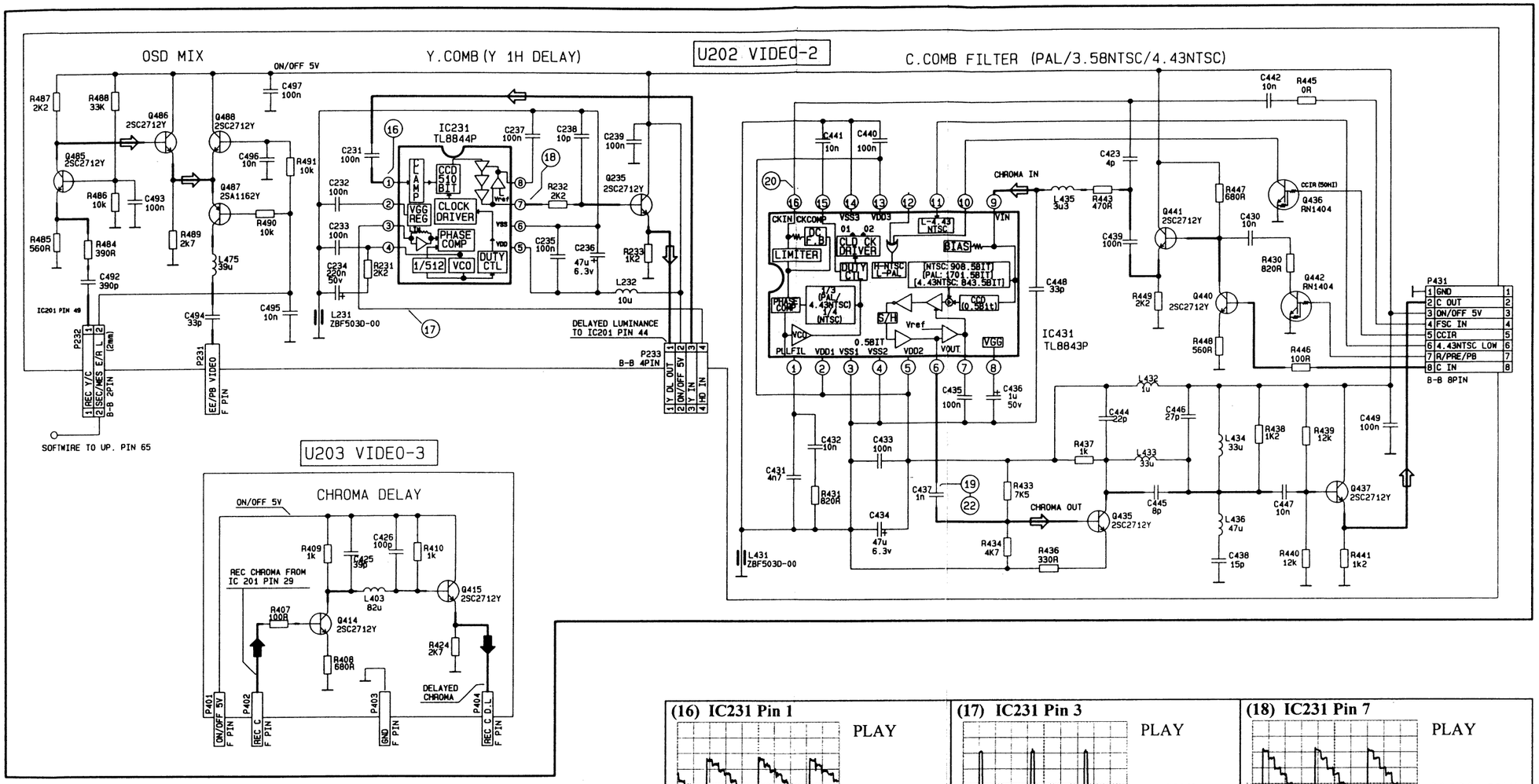
VIDEO L6/L7 (MAIN BOARD)

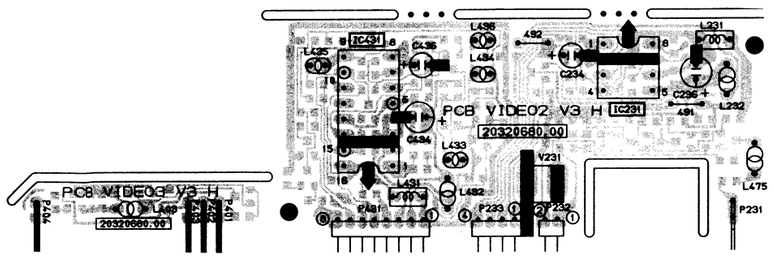
Video LP correction • Video Longplay Korrektur

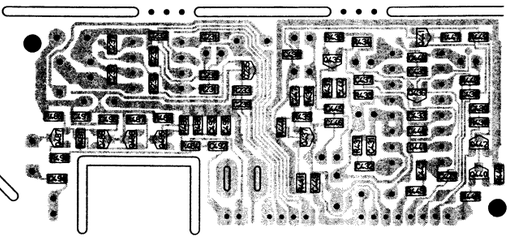


Sub boards Video signal processing• Platines auxiliaires traitement vidéo • Sub Module V

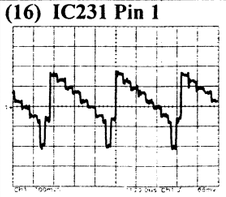








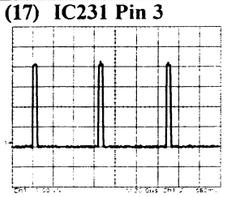
(16) IC231 Pin 1



PLAY

V:100mV/div
H:20µs/div

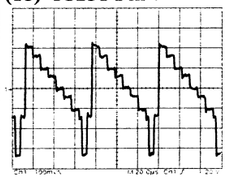
(17) IC231 Pin 3



PLAY

V:1V/div
H:20µs/div

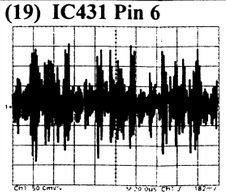
(18) IC231 Pin 7



PLAY

V:100mV/div
H:20µs/div

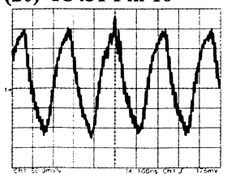
(19) IC431 Pin 6



REC (SP)

V:50mV/div
H:20µs/div

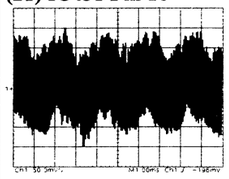
(20) IC431 Pin 16



REC

V:50mV/div
H:0.1µs/div

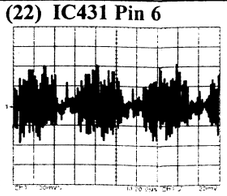
(21) IC431 Pin 16



REC

V:50mV/div
H:1ms/div

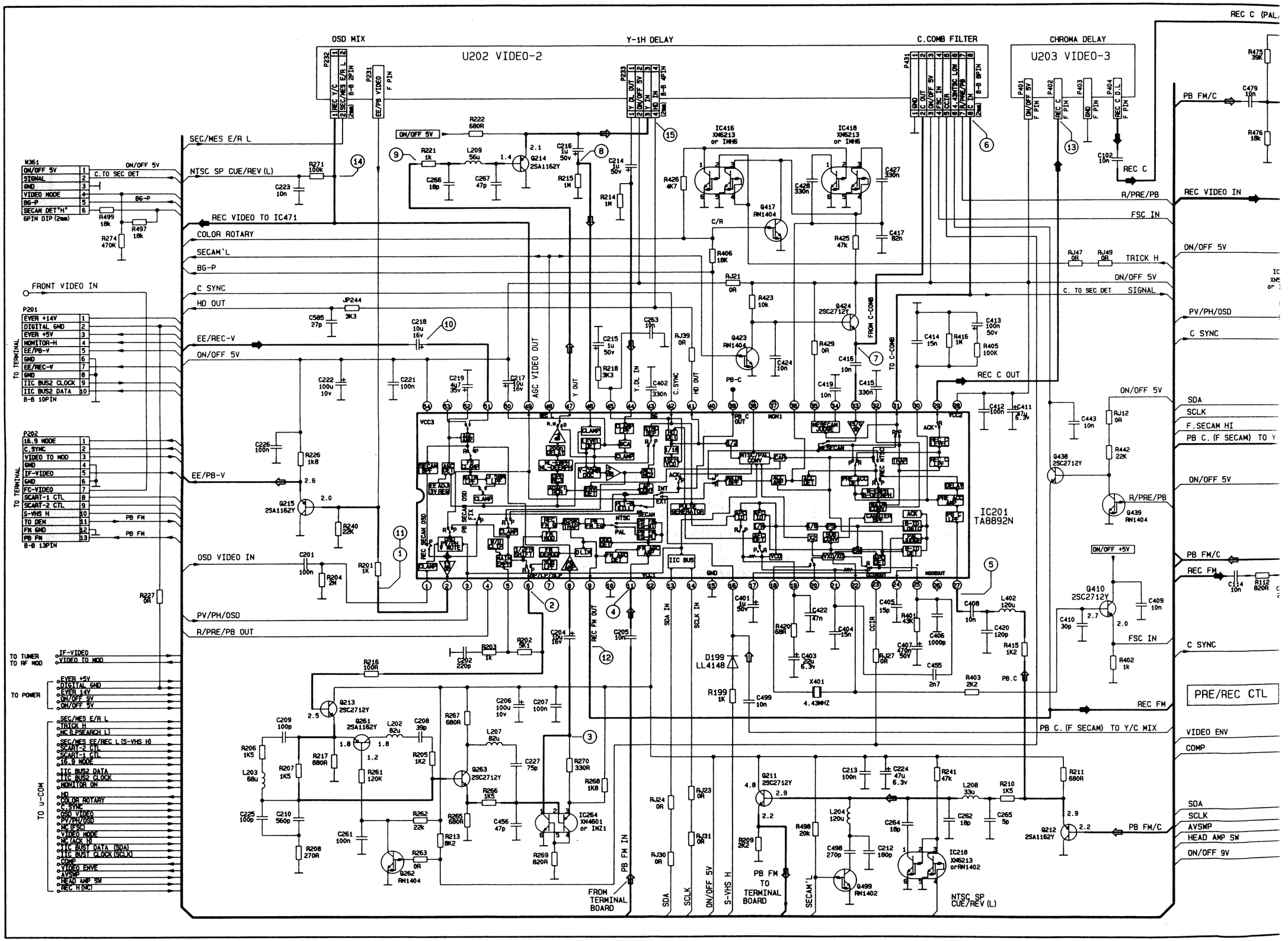
(22) IC431 Pin 6

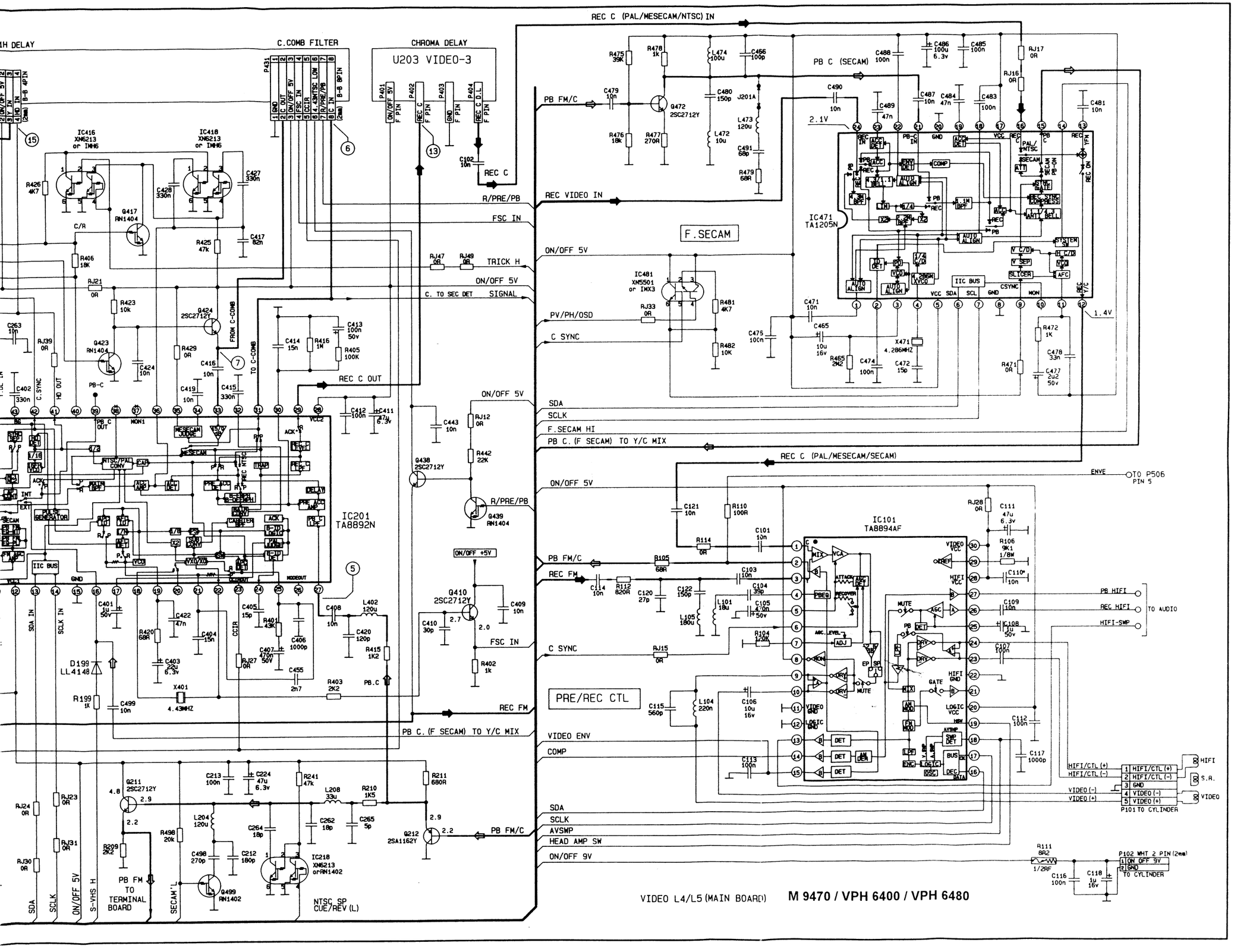


PLAY

V:100mV/div
H:20µs/div

Video signal processing (with SECAM L) • Traitement Luminance / Chrominance (avec SECAM L) • Video Signalverarbeitung (mit SECAM L)
Elaborazione video (con SECAM L) • Tratamiento vídeo (con SECAM L)

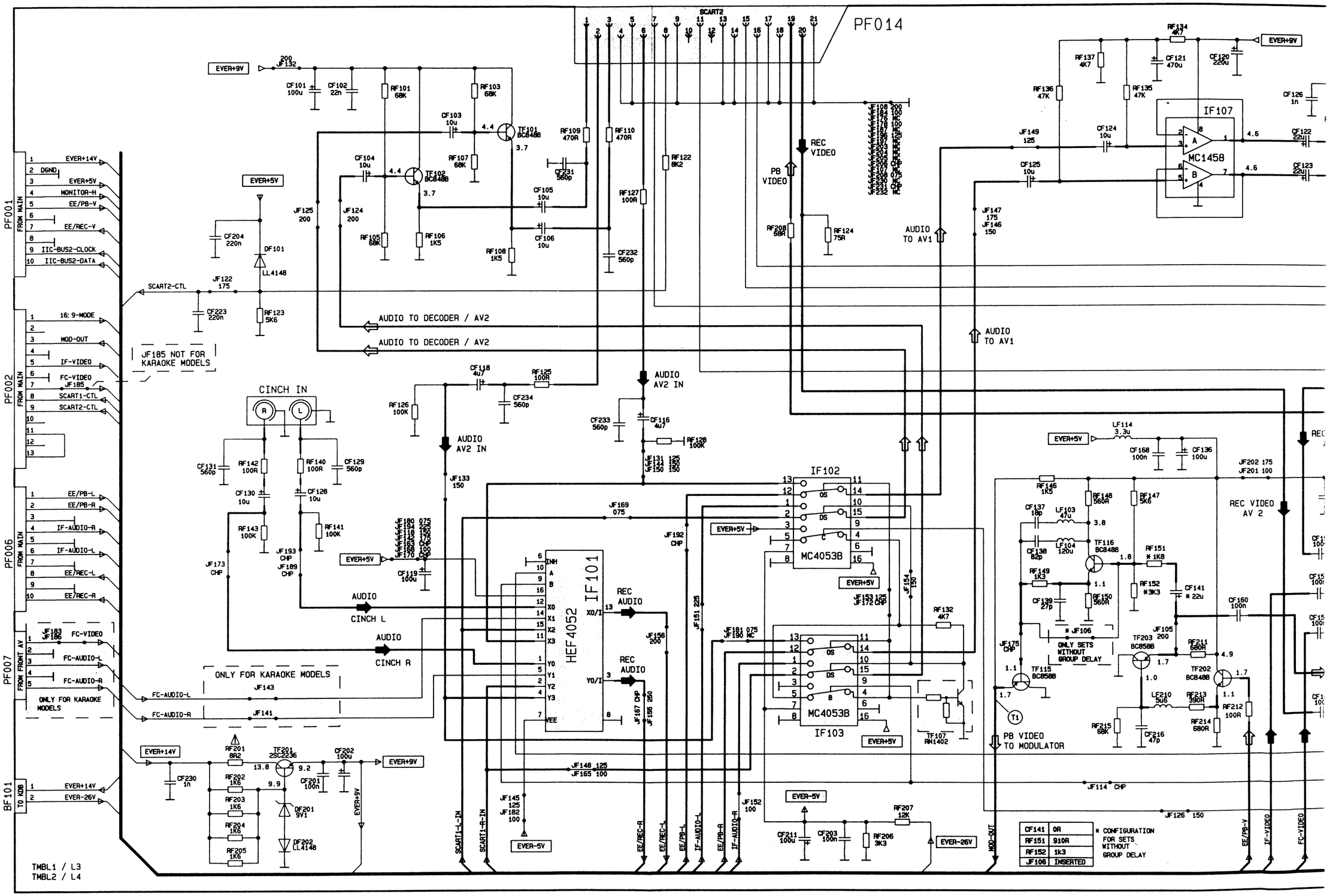




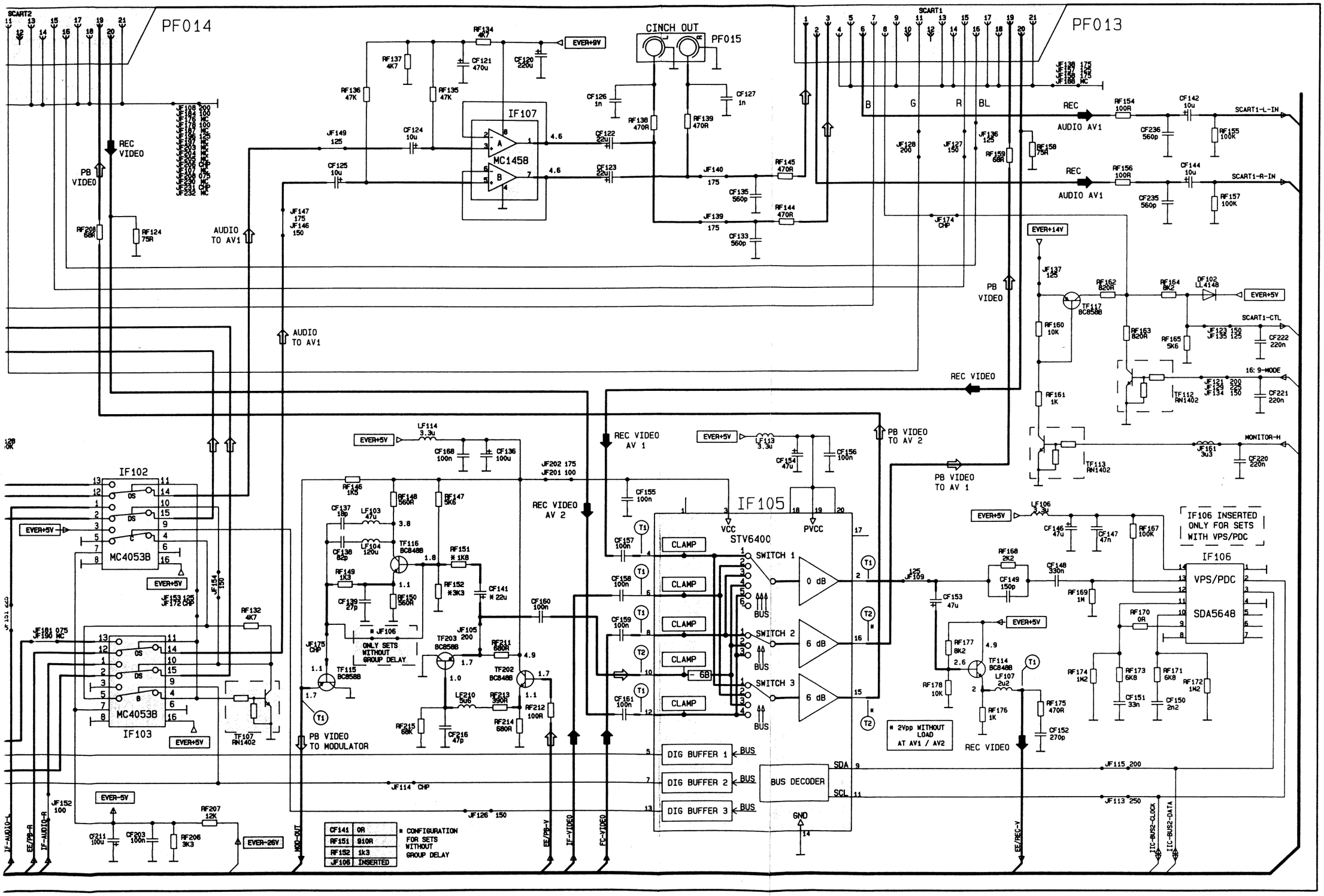
VIDEO L4/L5 (MAIN BOARD)

M 9470 / VPH 6400 / VPH 6480

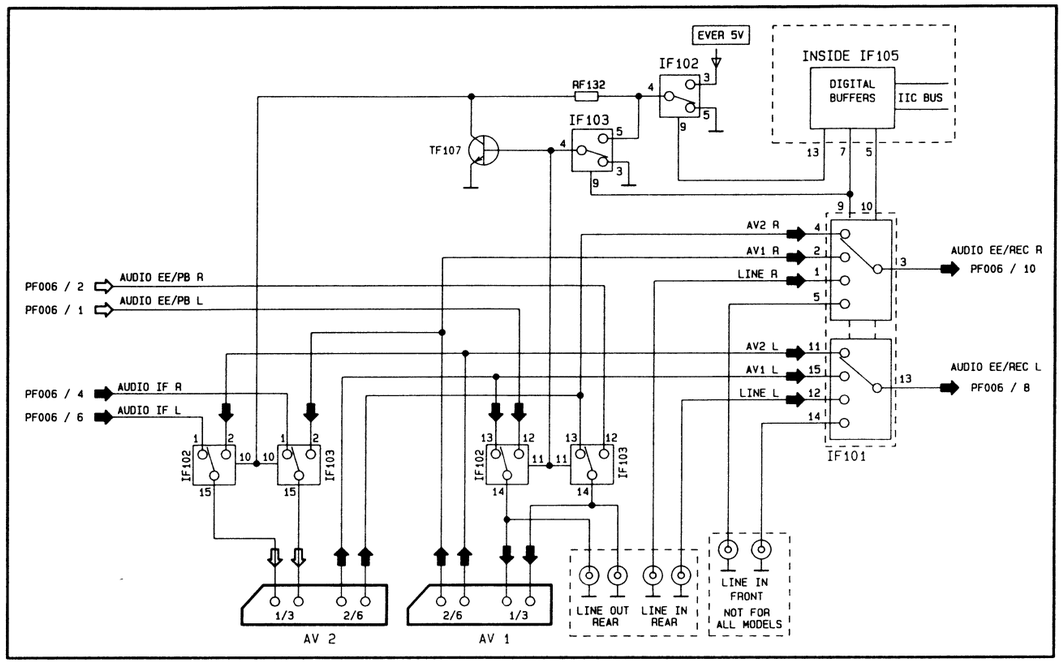
Scart connection board • Platine prises Scart • Leiterplatte Scart Anschlußplatte
Piastra Scart • Platina Scart



FV 88 HVX / M 9460 / V3445 SV / VPH 6400 / VPH 6480


SCART2
PF014
SCART1
PF013
CINCH OUT
PF015
IF107
MC1458
REC VIDEO
PB VIDEO
AUDIO TO AV1
REC AUDIO AV1
SCART1-L-IN
SCART1-R-IN
SCART1-CTL
16: 9-MODE
MONITOR-H
EVER+14V
EVER+9V
EVER+5V
EVER-5V
EVER-26V
REC VIDEO AV 1
REC VIDEO AV 2
PB VIDEO TO AV 2
PB VIDEO TO AV 1
PB VIDEO TO MODULATOR
IF102
MC4053B
IF103
IF105
STV6400
CLAMP
SWITCH 1
SWITCH 2
SWITCH 3
0 dB
6 dB
- 6dB
BUS
DIG BUFFER 1
DIG BUFFER 2
DIG BUFFER 3
BUS DECODER
SDA
SCL
VCC
PVCC
GND
IF106
VPS/PDC
SDA5648
IF106 INSERTED ONLY FOR SETS WITH VPS/PDC
ONLY SETS WITHOUT GROUP DELAY
* 2Vpp WITHOUT LOAD AT AV1 / AV2
* CONFIGURATION FOR SETS WITHOUT GROUP DELAY
CF141 0R
RF151 910R
RF152 1k3
JF106 INSERTED
IF-AUDIO-L
IF-AUDIO-R
EE/PB-V
IF-VIDEO
FC-VIDEO
EE/REC-V
MOD-OUT
IIC-BUS2-CLOCK
IIC-BUS2-DATA

Block diagram Audio selection • Synoptique des commutations audio • Blockschaltbild Audio Umschaltung
Schema a blocchi dei commutazioni audio • Esquema de bloques de las conmutaciones



Decoder / Monitor Control

IF 105		IF 102	IF 103	IF 102 / 103		IF 102 / 103	
13	7	4	4	11	10	15 (AV 2 OUT)	14 (AV 1 OUT)
L	L	L	L	L	L	AV 1	EE / PB
H	L	H	H	H	L	AV 1	AV 2
L	H	L	L	L	L	AV 1	EE / PB
H	H	H	L	L	H	IF	EE / PB

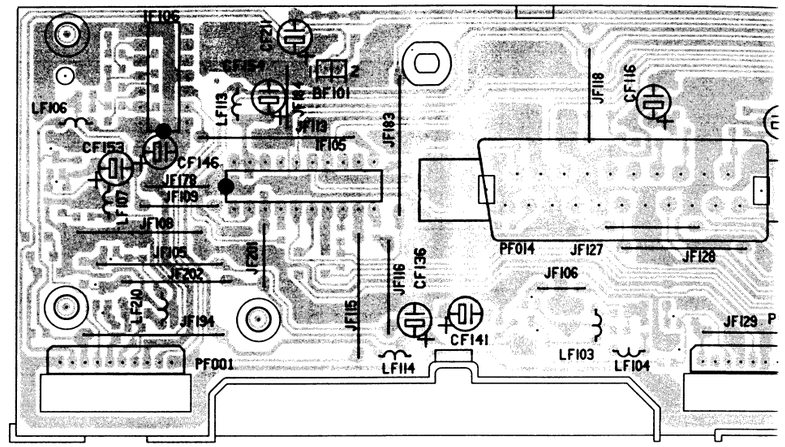
Audio Switching on Terminal board

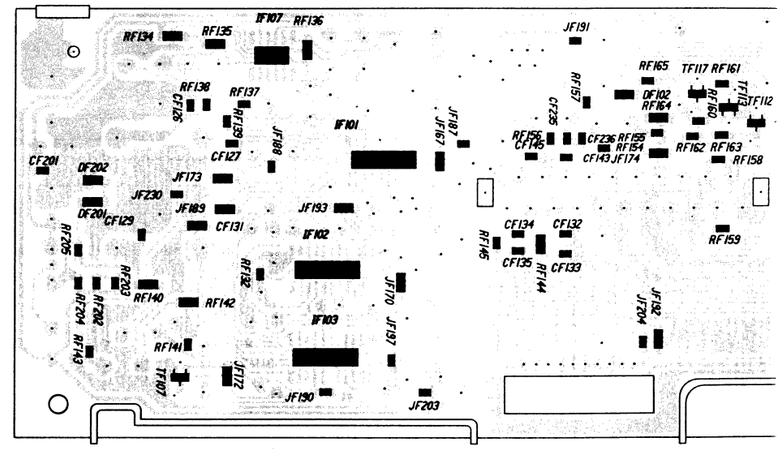
IF 105			IF 102 / 103			
5	7	13	15 TO AV 2 OUT	14 TO AV 1 OUT		REC / EE
L	L	L	AV 1	EE / PB	DECODER AV	CINCH
L	L	H	AV 1	AV 2	MONITOR	CINCH
L	H	L	AV 1	EE / PB	DECODER AV	AV 1
L	H	H	IF	EE / PB	DECODER IF	AV 1
H	L	L	AV 1	EE / PB	DECODER AV	Front Audio
H	L	H	AV 1	AV 2	MONITOR	Front Audio
H	H	L	AV 1	EE / PB	DECODER AV	AV 2
H	H	H	IF	EE / PB	DECODER IF	AV 2
EE / REC CTL		Monitor/Decoder CTL				

Recorded Signal depending on the selected mode

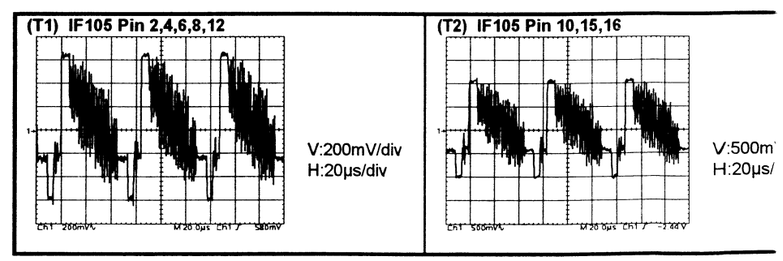
SELECTED MODE	IF 105 Pin 13	IF 105 Pin 7	IF 105 Pin 5	RECORDED SIGNAL
AV 1 (SCART 1)	X	H	L	Audio / Video AV 1
AV 2 (SCART 2)	X	H	H	Audio / Video AV 2
AV 3 (Front AV)	X	L	H	Front Audio/Video (not for all models)
HIFI (Cinch)	X	L	L	Audio Cinch (Rear Input sockets)
Si -- Cinch)	X	L	L	Audio Cinch (Rear Input sockets)
PR-- (TUNER)	X	L	L	IF Audio (selected on Audio board)

Scart connection board • Platine prises Scart • Leiterplatte Scart Anschlu
Piastra Scart • Platina Scart

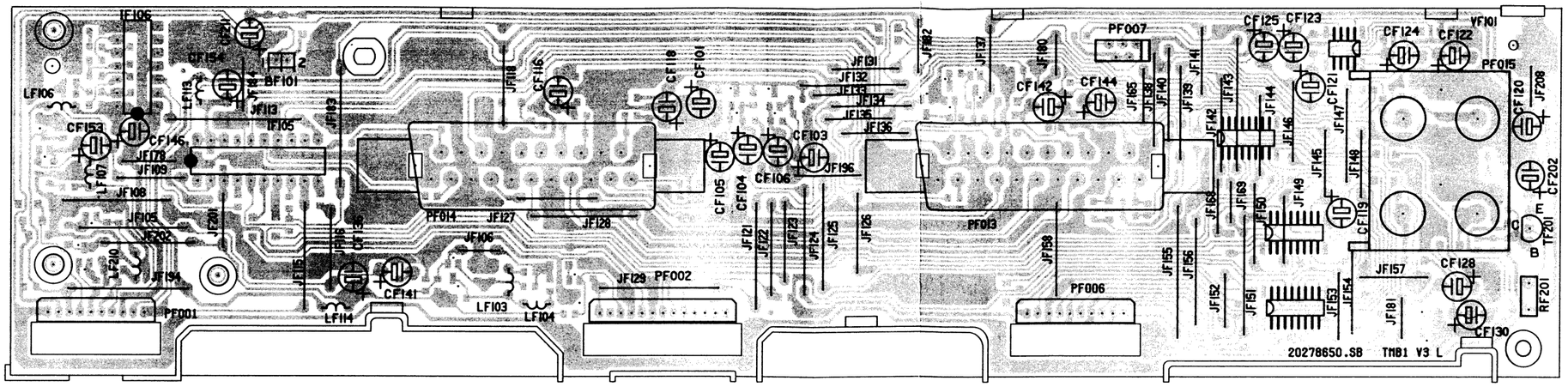


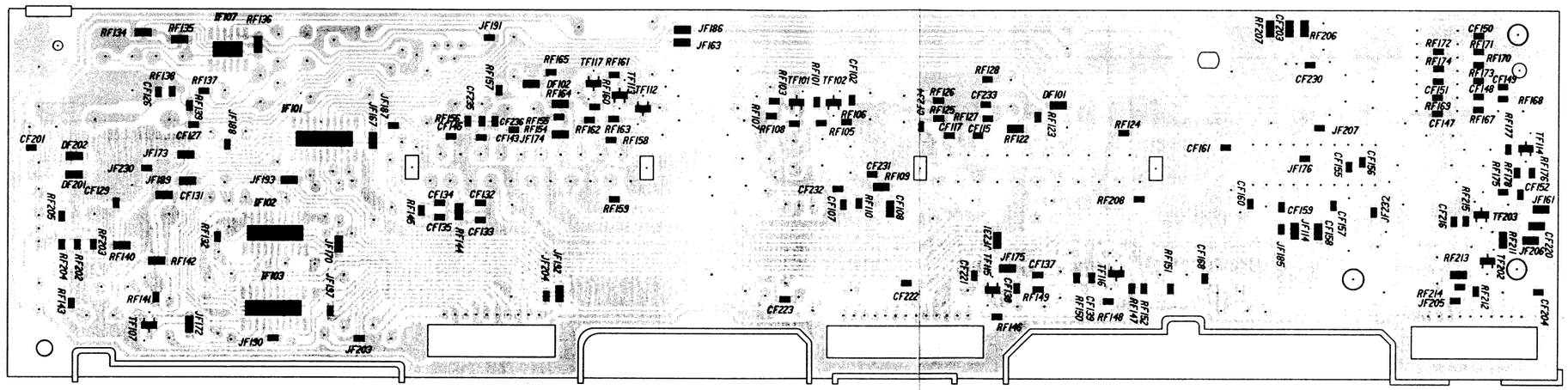


Measurements Scart connection board • Mesures platine prises Scart • M
Misuri piastra Scart • Medidas platina Scart



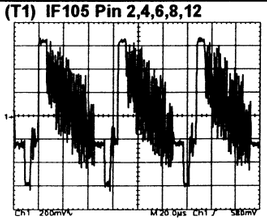
Scart connection board• Platine prises Scart • Leiterplatte Scart Anschlußplatte
Piastra Scart • Platina Scart





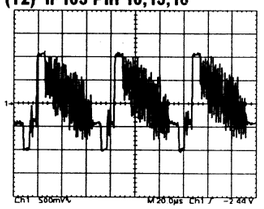
Measurements Scart connection board• Mesures platine prises Scart • Messungen Scart Anschlußplatte
Misuri piastra Scart • Medidas platina Scart

(T1) IF105 Pin 2,4,6,8,12



V:200mV/div
H:20µs/div

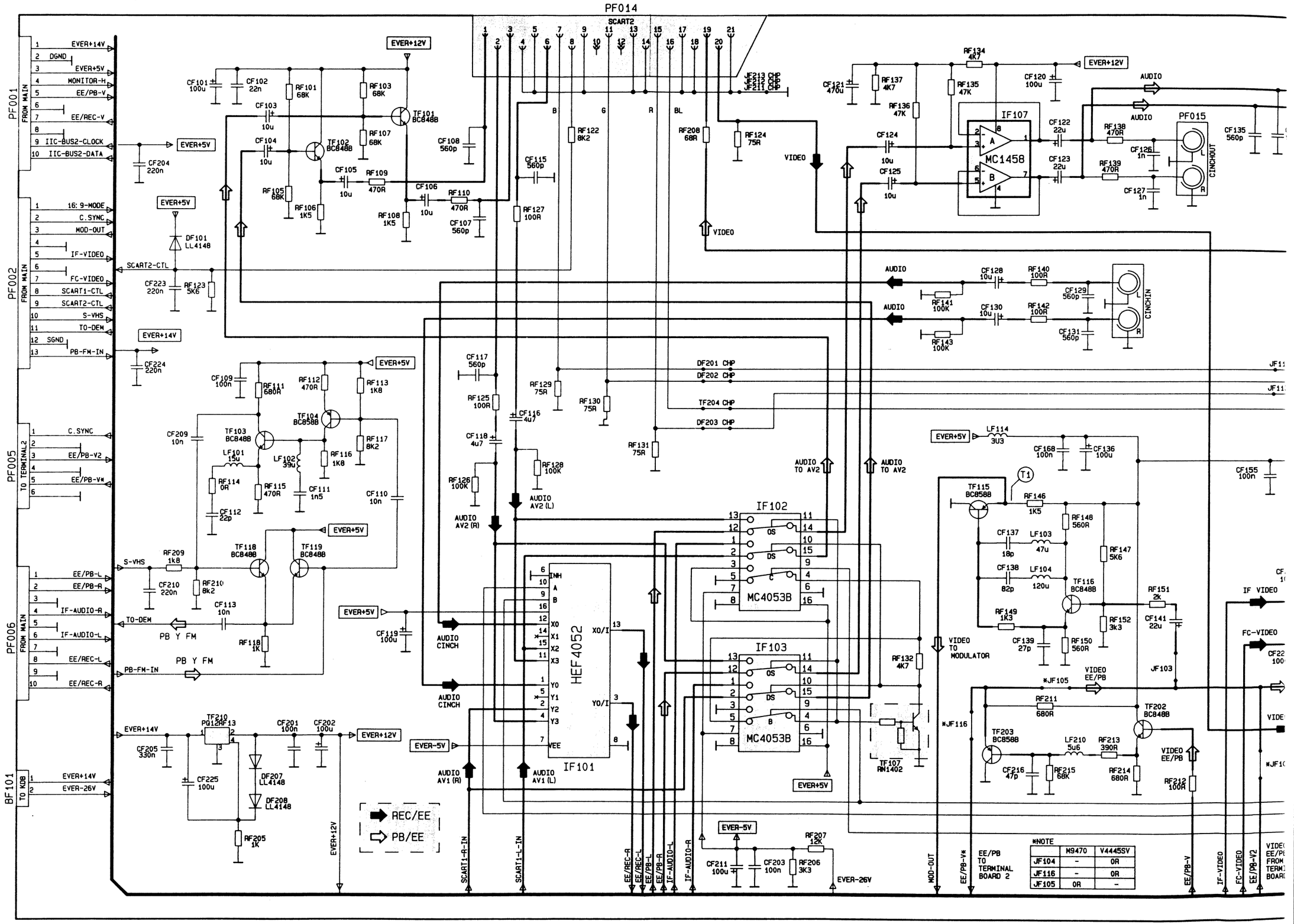
(T2) IF105 Pin 10,15,16



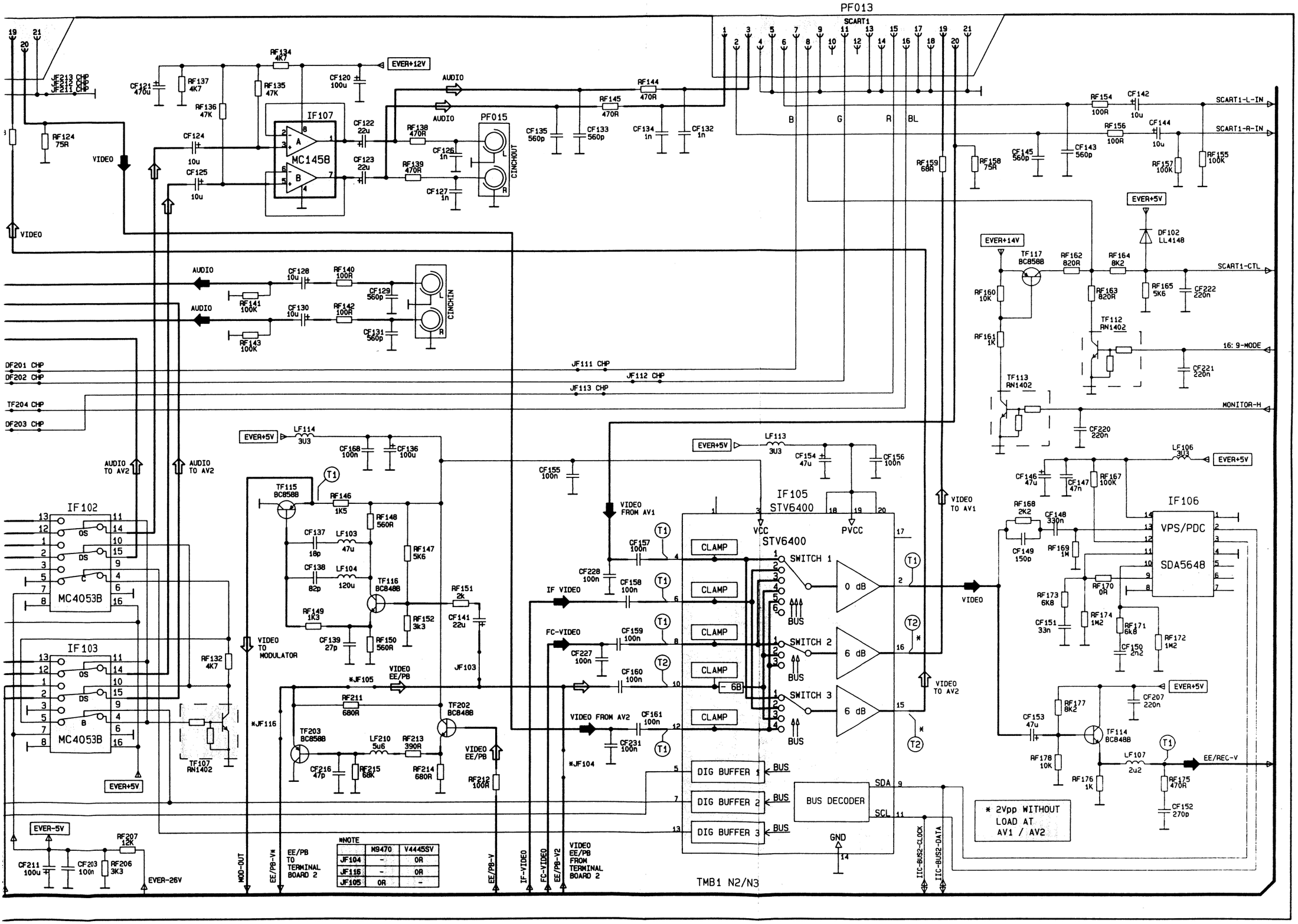
V:500mV/div
H:20µs/div

TERMINAL BOARD		MODE			REMARKS
LOC	PIN	PLAY	REC	EE	
IX001	1	NC	NC	NC	
	2	1.1/0.7	1.1/0./	1.1/0.7	Depends on selected input/signal
	3	5.0	5.0	5.0	
	4	1.7	1.7	1.1	
	5				Input select
	6	2.3	2.3	2.3	
	7				Input select
	8	1.3	1.3	1.3	
	9				IIC Bus SDA
	10	2.7	2.3	2.3	
	11				IIC Bus SCL
	12	1.2	1.3	1.3	
	13				Input select
	14	0	0	0	
	15	1.7/0.7	1.6/0.5	1.7/0.7	Depends on selected input/signal
	16	2.1/0.7	1.9/0.7	1.7/0.7	Depends on selected input/signal
	17	NC	NC	NC	
	18	5.0	5.0	5.0	
	19	5.0	5.0	5.0	
	20	5.0	5.0	5.0	

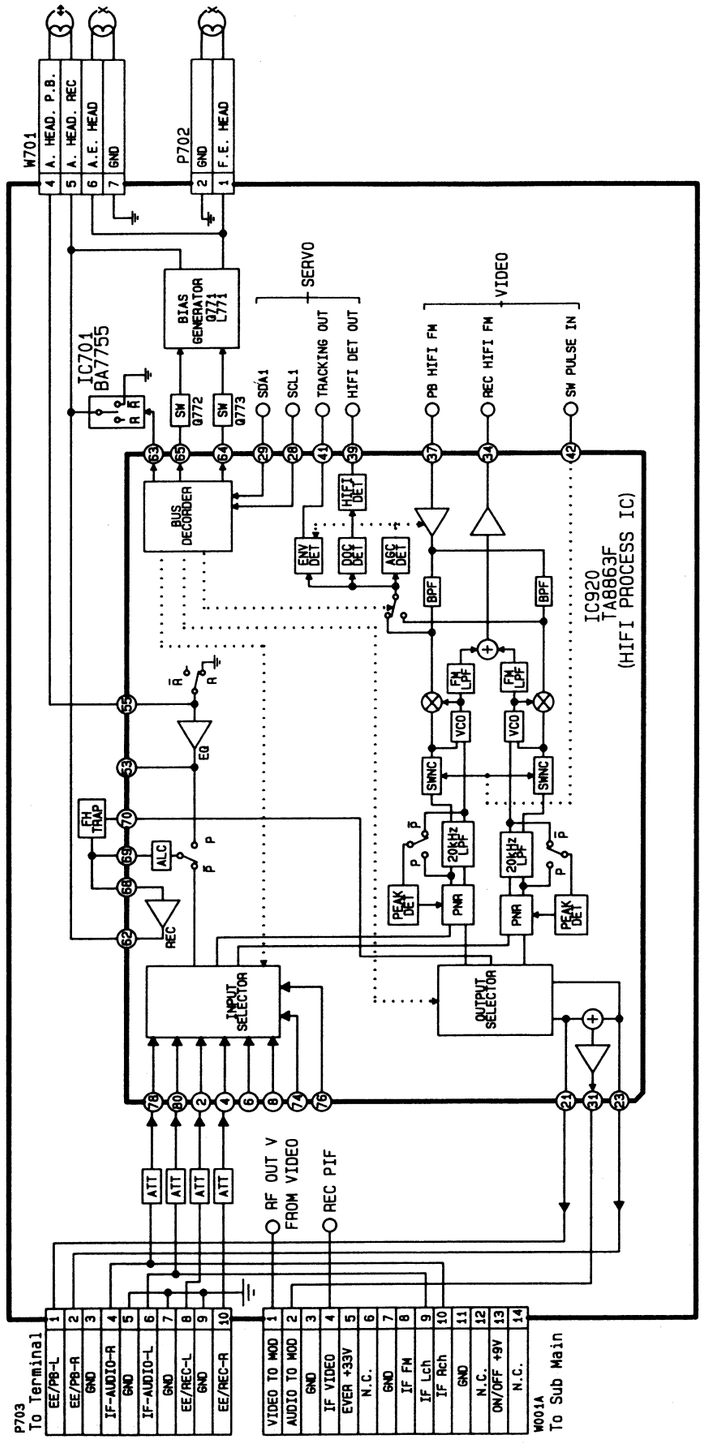
Scart connection board with SVHS PB• Platine prises Scart avec lecture SVHS • Leiterplatte Scart Anschlußplatte mit SVHS Wiedergabe
Piastra Scart con riproduzione SVHS • Platina Scart con reproducción SVHS

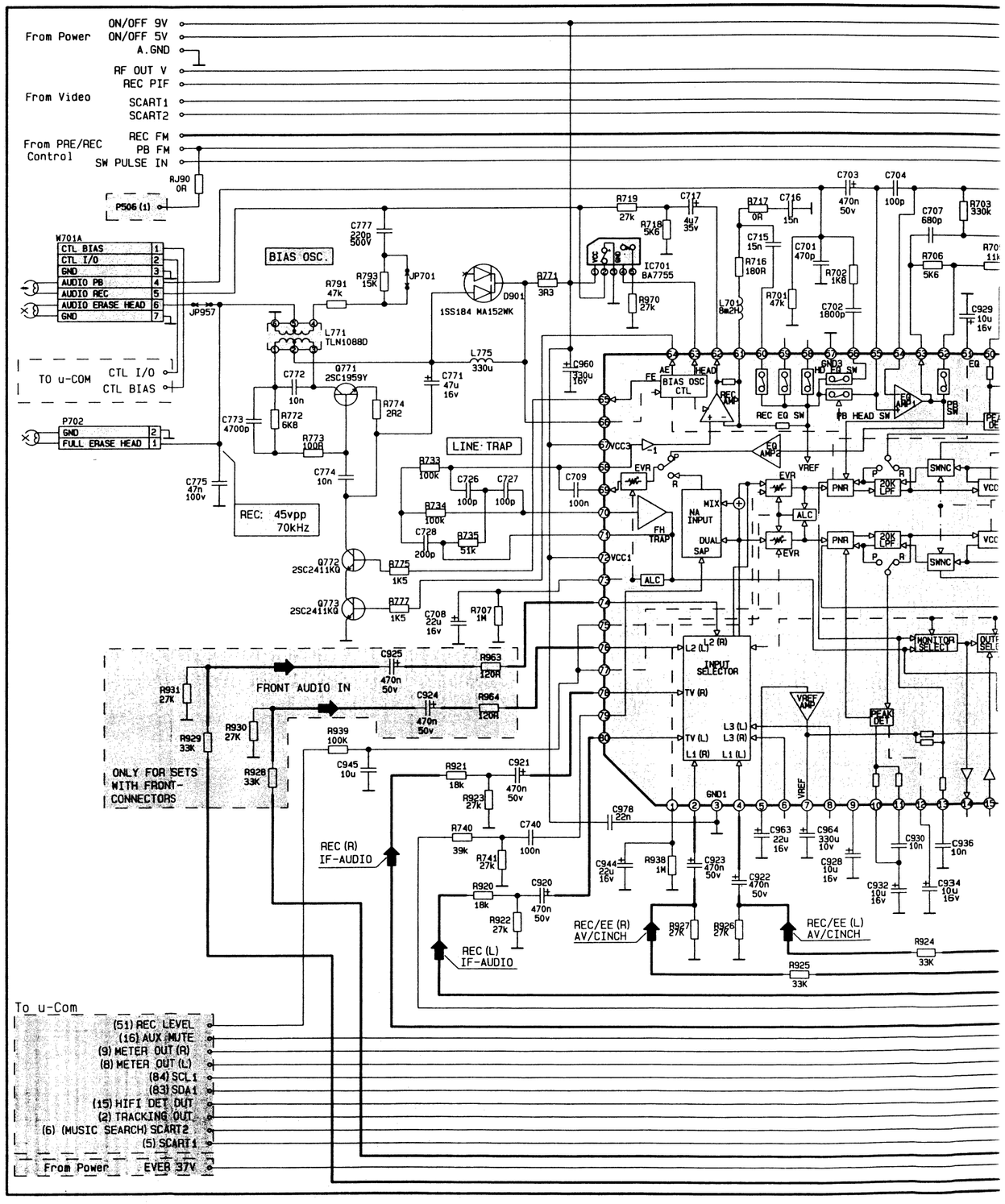


M 9470 / V 4445 SV


PF013
SCART1
IF107
MC1458
PF015
CINCHOUT
CINCHIN
IF102
MC4053B
IF103
MC4053B
TF107 RN1402
IF105 STV6400
STV6400
CLAMP
SWITCH 1
SWITCH 2
SWITCH 3
0 dB
6 dB
- 6B
BUS
DIG BUFFER 1
DIG BUFFER 2
DIG BUFFER 3
BUS DECODER
SDA
SCL
GND
VCC
PVCC
IF106
VPS/PDC
SDA5648
TF115 BC858B
TF116 BC848B
TF117 BC858B
TF202 BC848B
TF203 BC858B
TF112 RN1402
TF113 RN1402
TF114 BC848B
DF102 LL4148
EVER+12V
EVER+5V
EVER+14V
EVER-5V
EVER-26V
VIDEO
AUDIO
VIDEO TO AV1
VIDEO TO AV2
VIDEO TO MODULATOR
VIDEO FROM AV1
VIDEO FROM AV2
IF VIDEO
FC-VIDEO
VIDEO EE/PB
AUDIO TO AV2
SCART1-L-IN
SCART1-R-IN
SCART1-CTL
16: 9-MODE
MONITOR-H
EE/REC-V
IIC-BUS2-CLOCK
IIC-BUS2-DATA
MOD-OUT
EE/PB-V
IF-VIDEO
FC-VIDEO
EE/PB-V2
EE/PB TO TERMINAL BOARD 2
VIDEO EE/PB FROM TERMINAL BOARD 2
TMB1 N2/N3
* 2Vpp WITHOUT LOAD AT AV1 / AV2
*NOTE
JF104 – OR
JF116 – OR
JF105 OR –
M9470
V4445SV

Audio signal processing• Schéma des circuits audio • Audio Signalverarbeitung
Elaborazione audio • Tratamiento audio





FV 88 HVX / M 9460 / VPH 6400

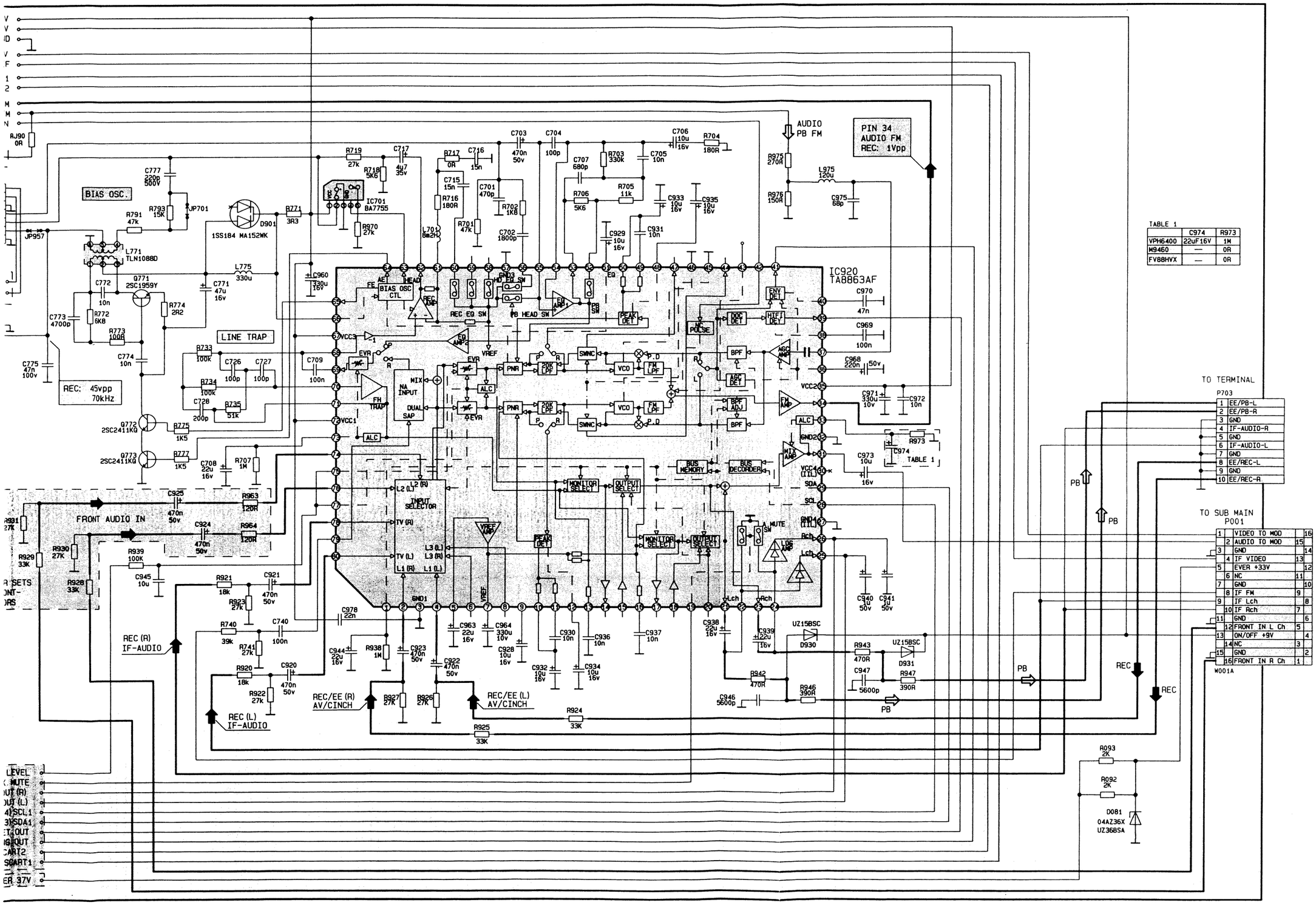
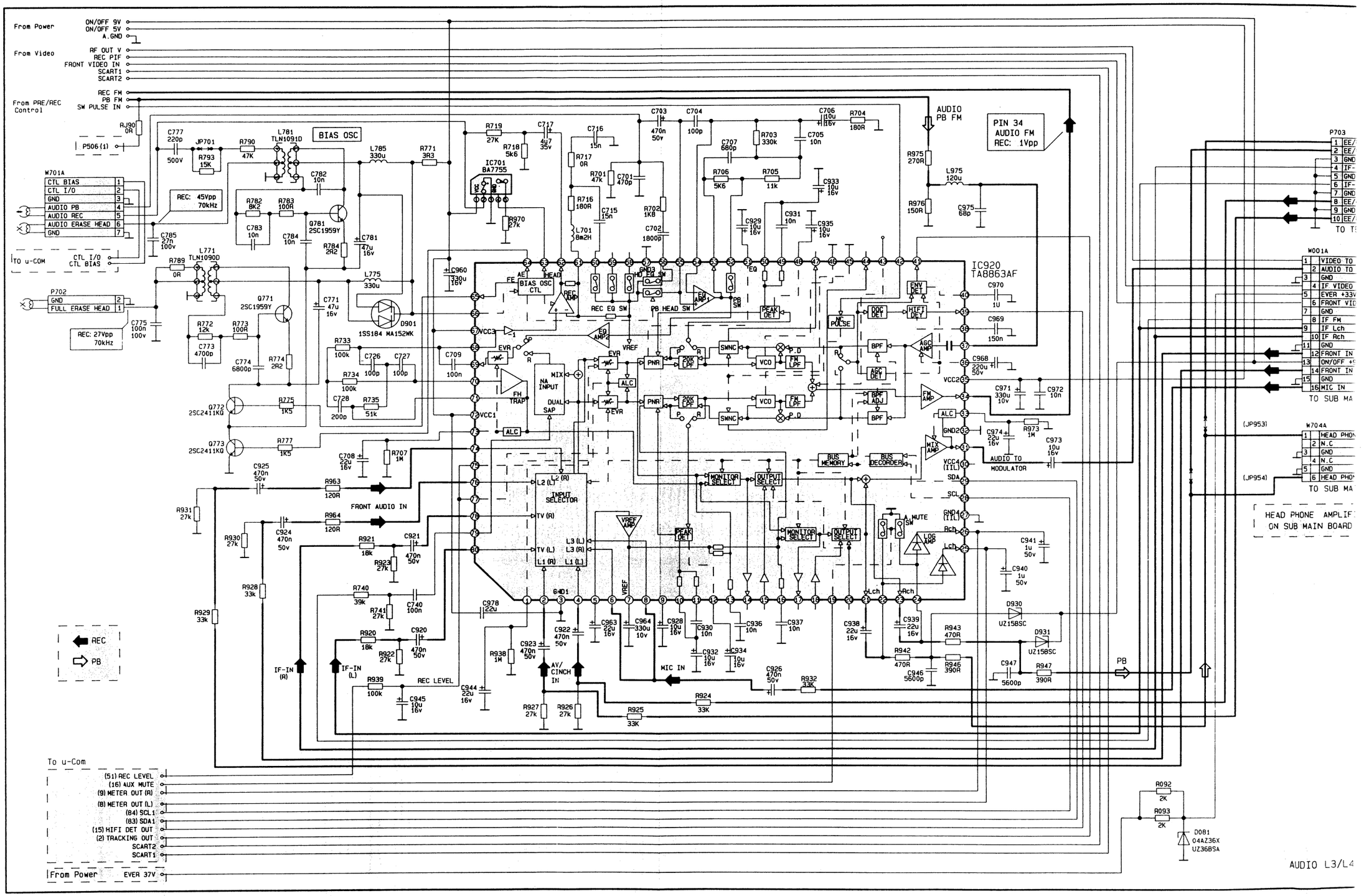


TABLE 1		
	C974	R973
VPH6400	22uF16V	1M
M9460	—	0R
FV88HVX	—	0R

P703	
1	EE/PB-L
2	EE/PB-R
3	GND
4	IF-AUDIO-R
5	GND
6	IF-AUDIO-L
7	GND
8	EE/REC-L
9	GND
10	EE/REC-R

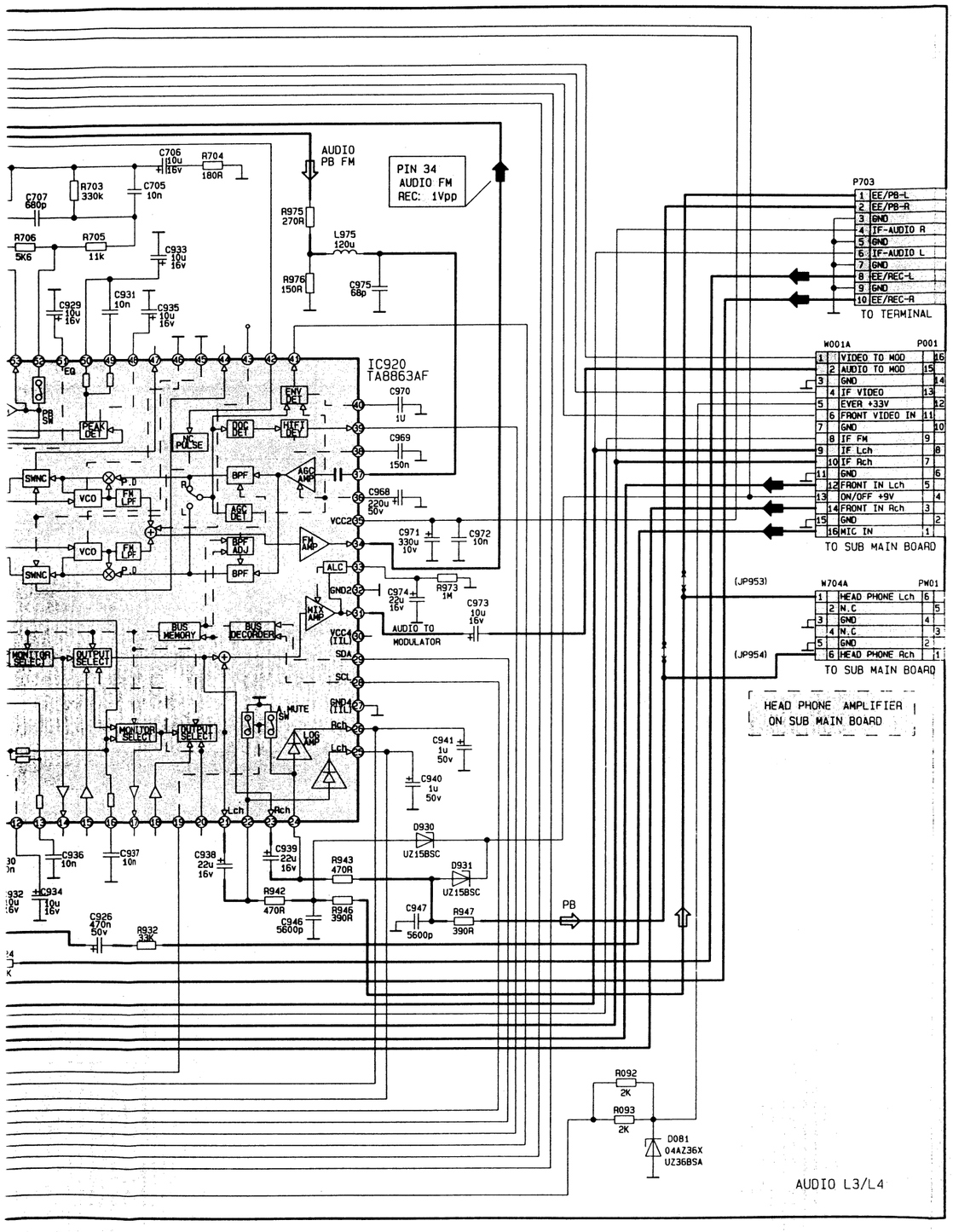
P001			
1		VIDEO TO MOD	16
2		AUDIO TO MOD	15
3		GND	14
4		IF VIDEO	13
5		EVER +33V	12
6		NC	11
7		GND	10
8		IF FM	9
9		IF Lch	8
10		IF Rch	7
11		GND	6
12		FRONT IN L Ch	5
13		ON/OFF +9V	4
14		NC	3
15		GND	2
16		FRONT IN R Ch	1

Audio signal processing (Dubbing) • Schéma des circuits audio (Dubbing) • Audio Signalverarbeitung (Nachvertonung)
Elaborazione audio (Dubbing) • Tratamiento audio (Dubbing)

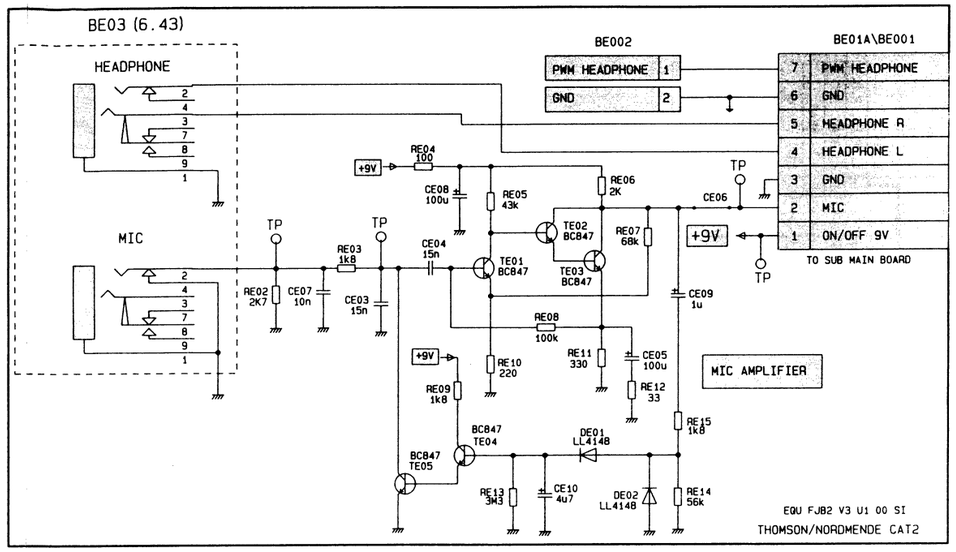


M 9470 / V 3445 SV / V 4445 SV

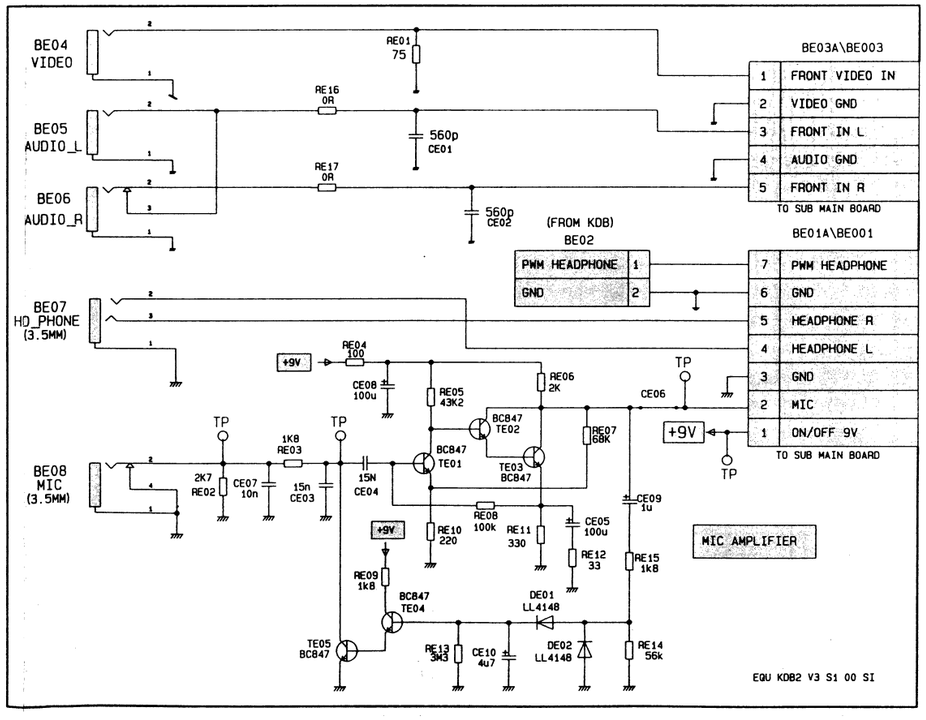
vertonung)



Front Connection Board Thomson/Nordmende



Front Connection Board Telefunken



Key-Display-Board (Telefunken) • Platine de commandes (Telefunken) • Bedienteil (Telefunken)
Tastiera (Telefunken) • Platina mandos (Telefunken)

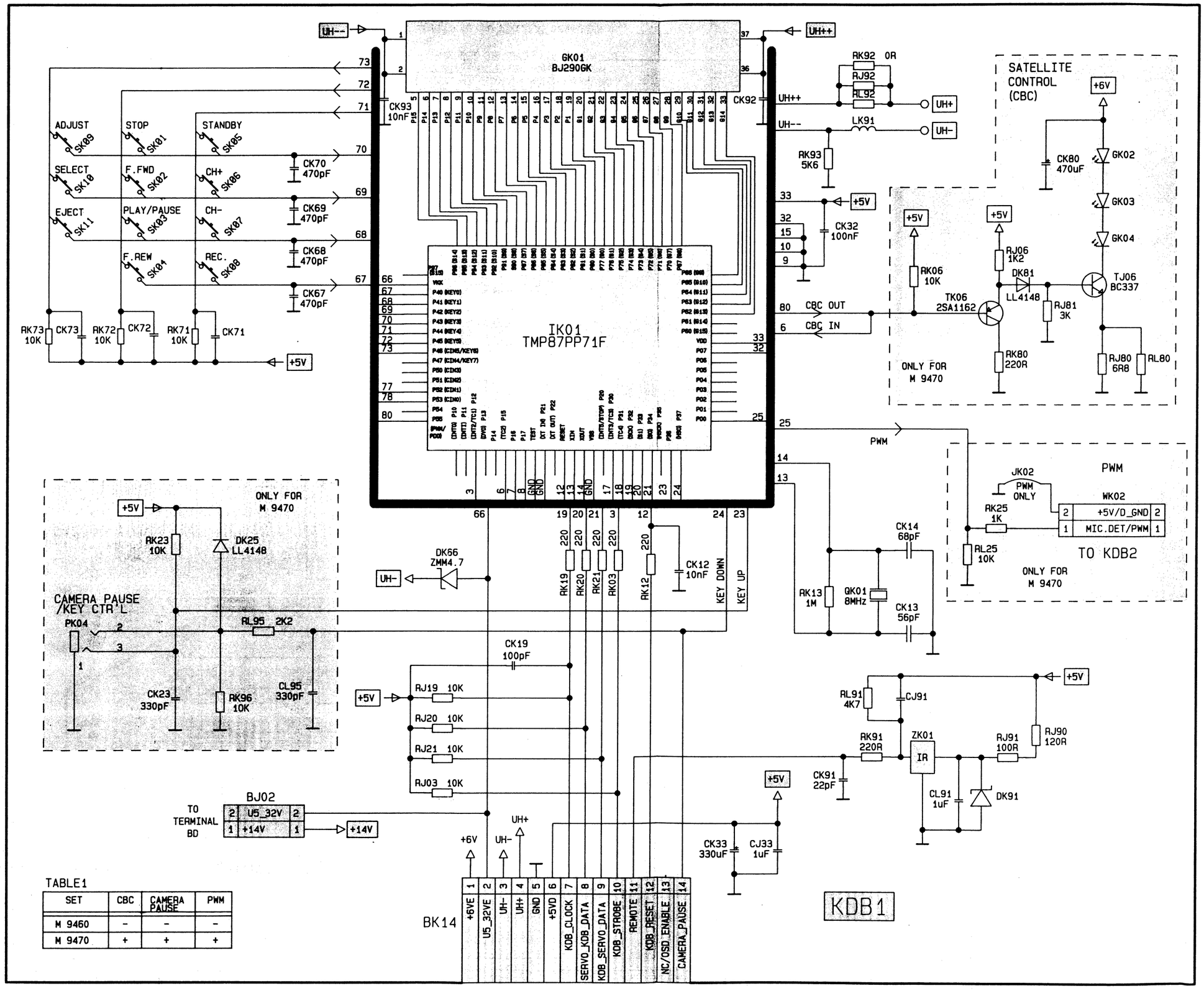
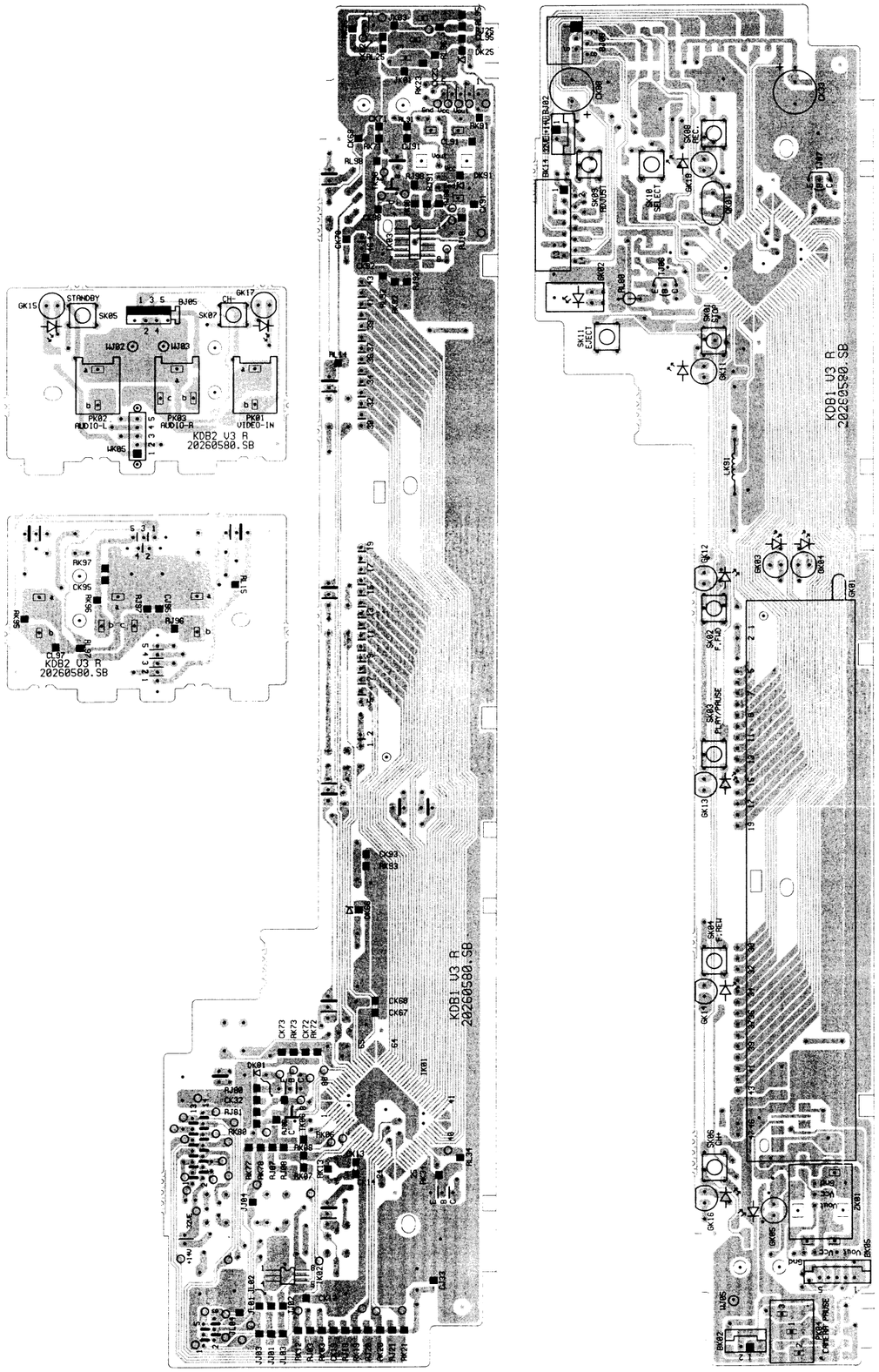
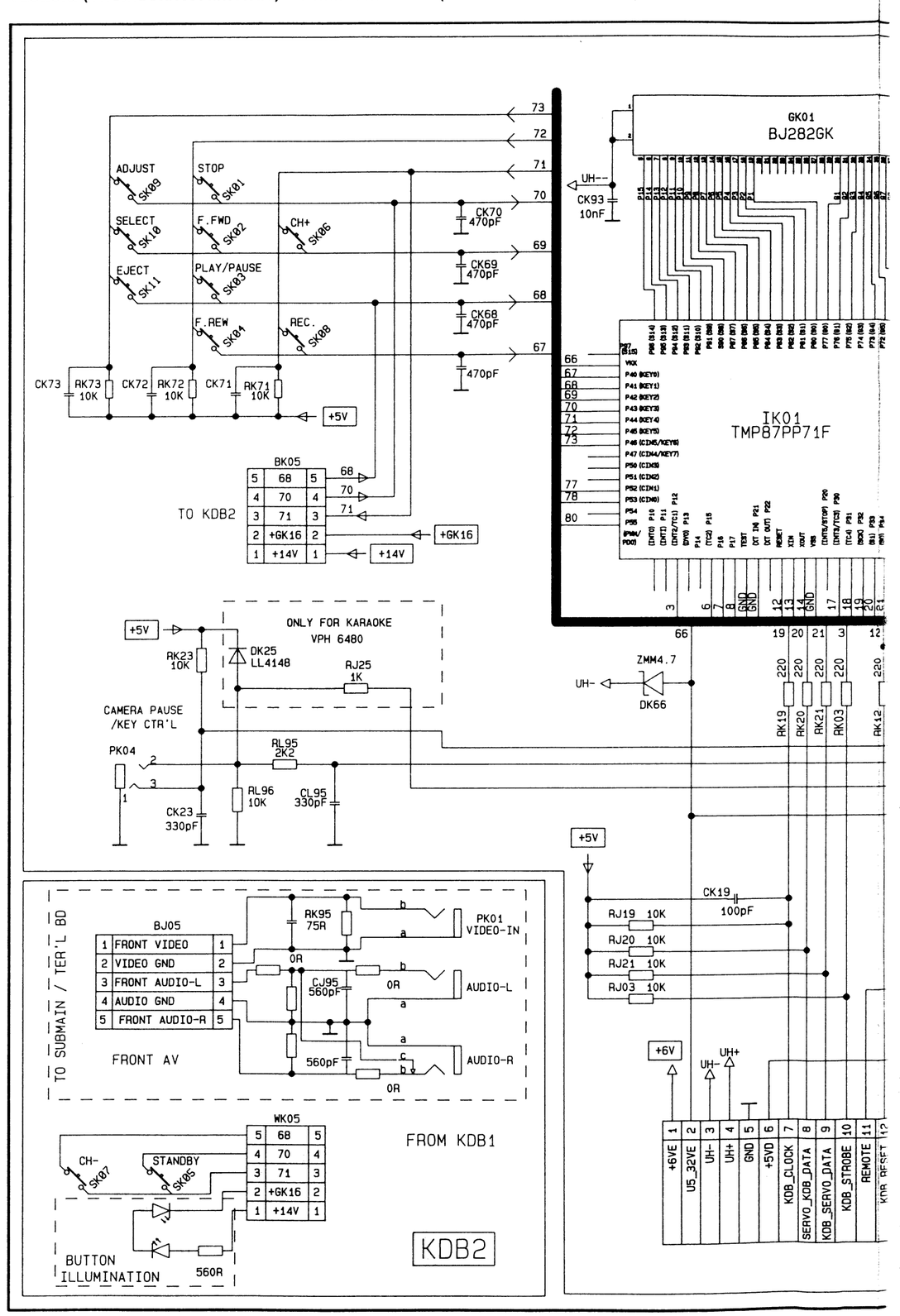


TABLE1

SET	CBC	CAMERA PAUSE	PWM
M 9460	-	-	-
M 9470	+	+	+


KDB2 V3 R
20260580.SB
KDB1 V3 R
20260580.SB


GK01
BJ282GK
IK01
TMP87PP71F
ADJUST SK09
STOP SK01
SELECT SK10
F.FWD SK02
CH+ SK06
EJECT SK11
PLAY/PAUSE SK03
F.REW SK04
REC. SK08
CK70 470pF
CK69 470pF
CK68 470pF
470pF
CK73 RK73 10K
CK72 RK72 10K
CK71 RK71 10K
+5V
BK05
TO KDB2
+GK16
+14V
UH-- CK93 10nF
ONLY FOR KARAOKE
VPH 6480
+5V
RK23 10K
DK25 LL4148
RJ25 1K
CAMERA PAUSE /KEY CTR'L
PK04
RL95 2K2
RL96 10K
CL95 330pF
CK23 330pF
ZMM4.7
DK66
UH-
RK19 220
RK20 220
RK21 220
RK03 220
RK12 220
TO SUBMAIN / TER'L BD
BJ05
FRONT VIDEO
VIDEO GND
FRONT AUDIO-L
AUDIO GND
FRONT AUDIO-R
FRONT AV
RK95 75R
0R
CJ95 560pF
560pF
PK01 VIDEO-IN
AUDIO-L
AUDIO-R
+5V
CK19 100pF
RJ19 10K
RJ20 10K
RJ21 10K
RJ03 10K
+6V
UH+
UH-
WK05
CH- SK07
STANDBY SK05
BUTTON ILLUMINATION
560R
FROM KDB1
KDB2
+6VE
U5_32VE
UH-
UH+
GND
+5VD
KDB_CLOCK
SERVO_KDB_DATA
KDB_SERVO_DATA
KDB_STROBE
REMOTE

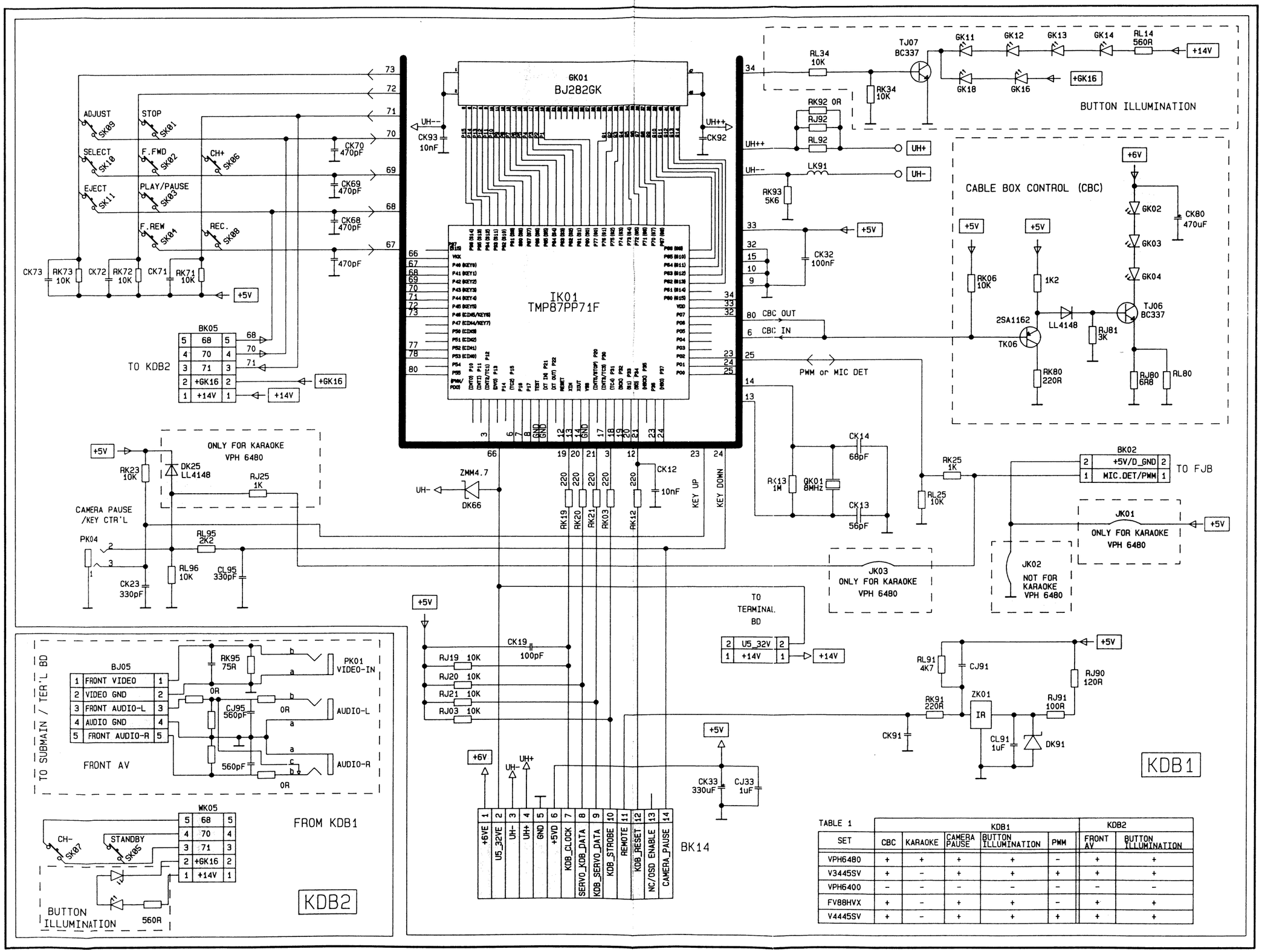
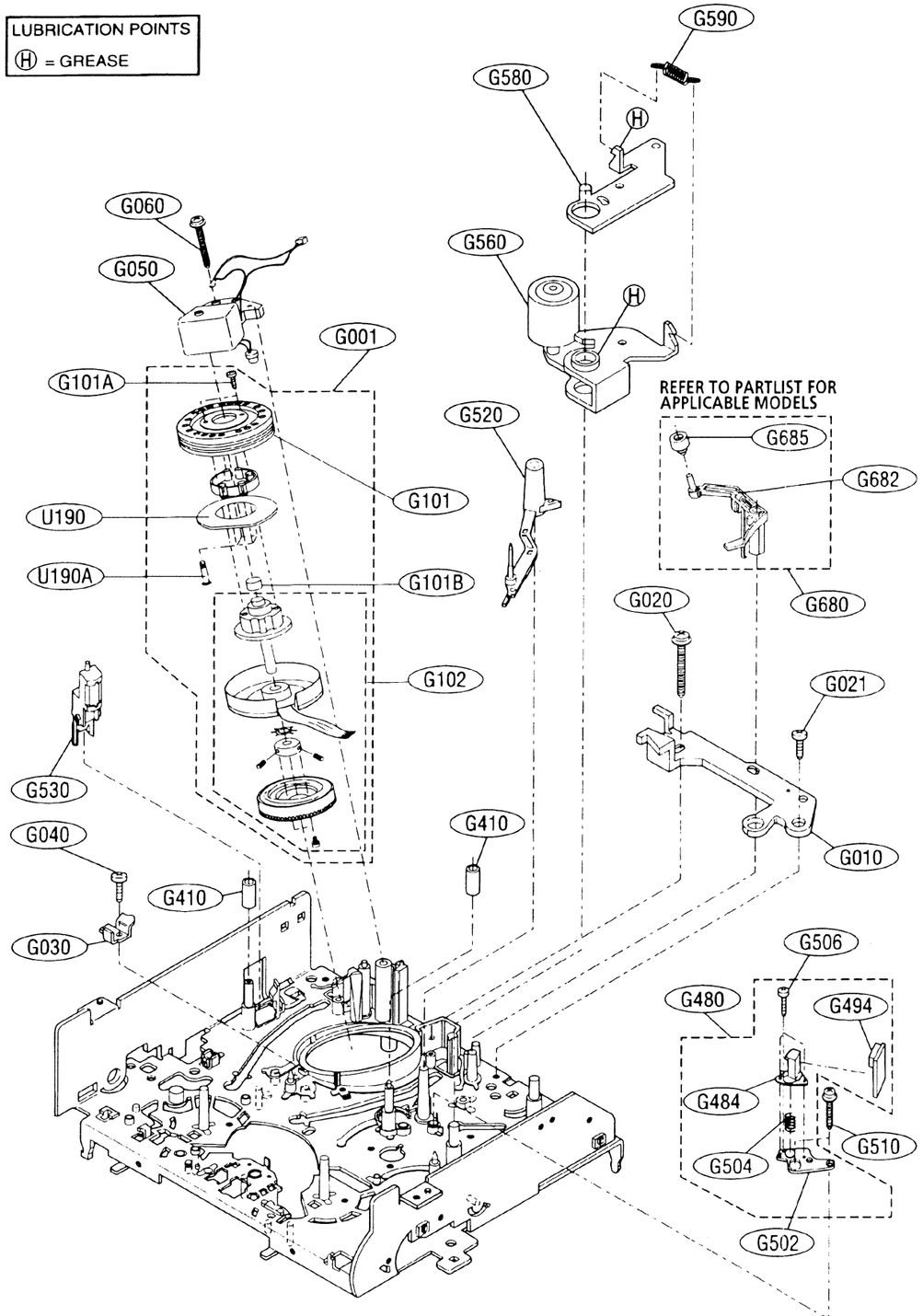


TABLE 1

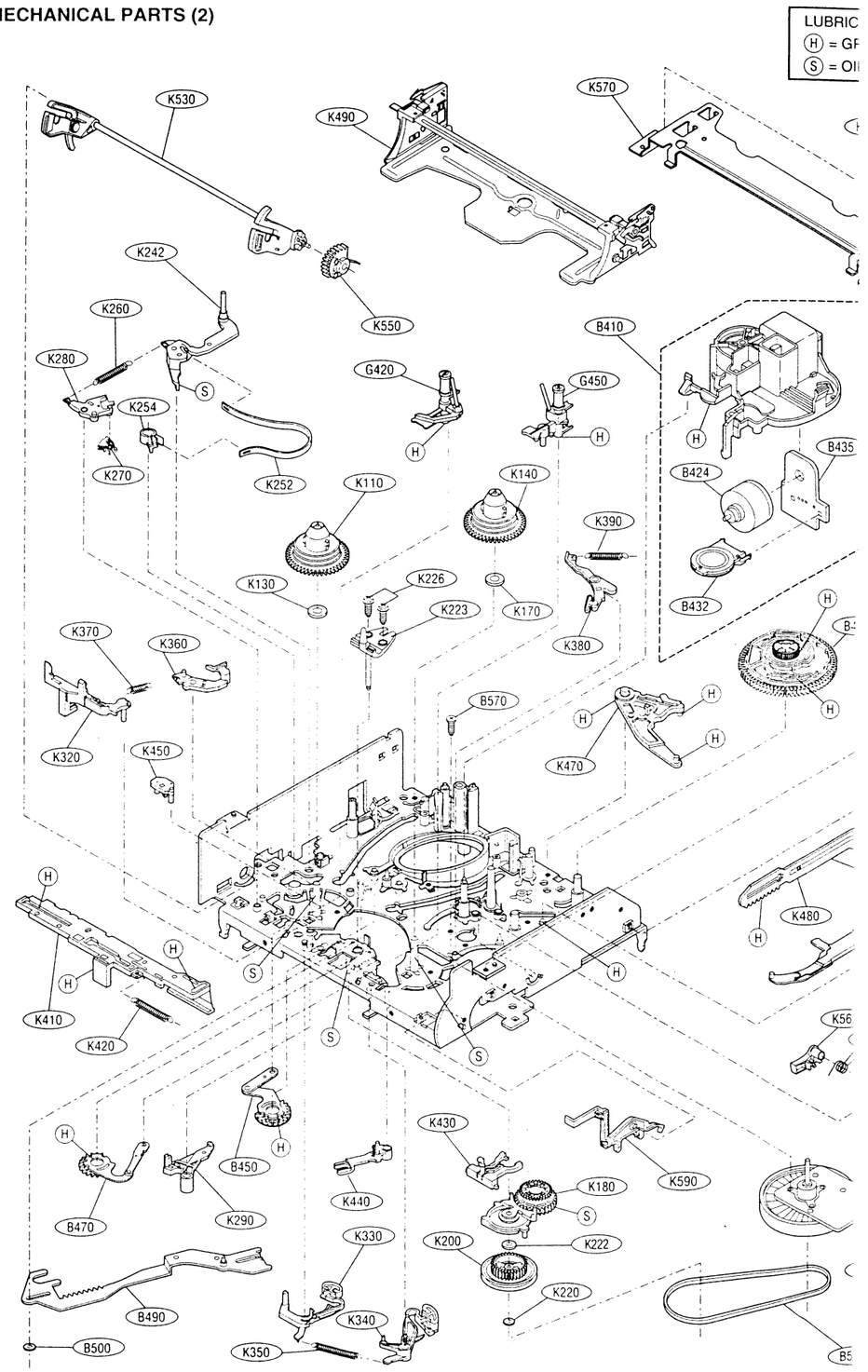
SET	KDB1 CBC	KDB1 KARAOKE	KDB1 CAMERA PAUSE	KDB1 BUTTON ILLUMINATION	KDB1 PWM	KDB2 FRONT AV	KDB2 BUTTON ILLUMINATION
VPH6480	+	+	+	+	–	+	+
V3445SV	+	–	+	+	+	+	+
VPH6400	–	–	–	–	–	–	–
FV88HVX	+	–	+	+	–	+	+
V4445SV	+	–	+	+	+	+	+

MECHANICAL PARTS (1)

LUBRICATION POINTS
Ⓗ = GREASE

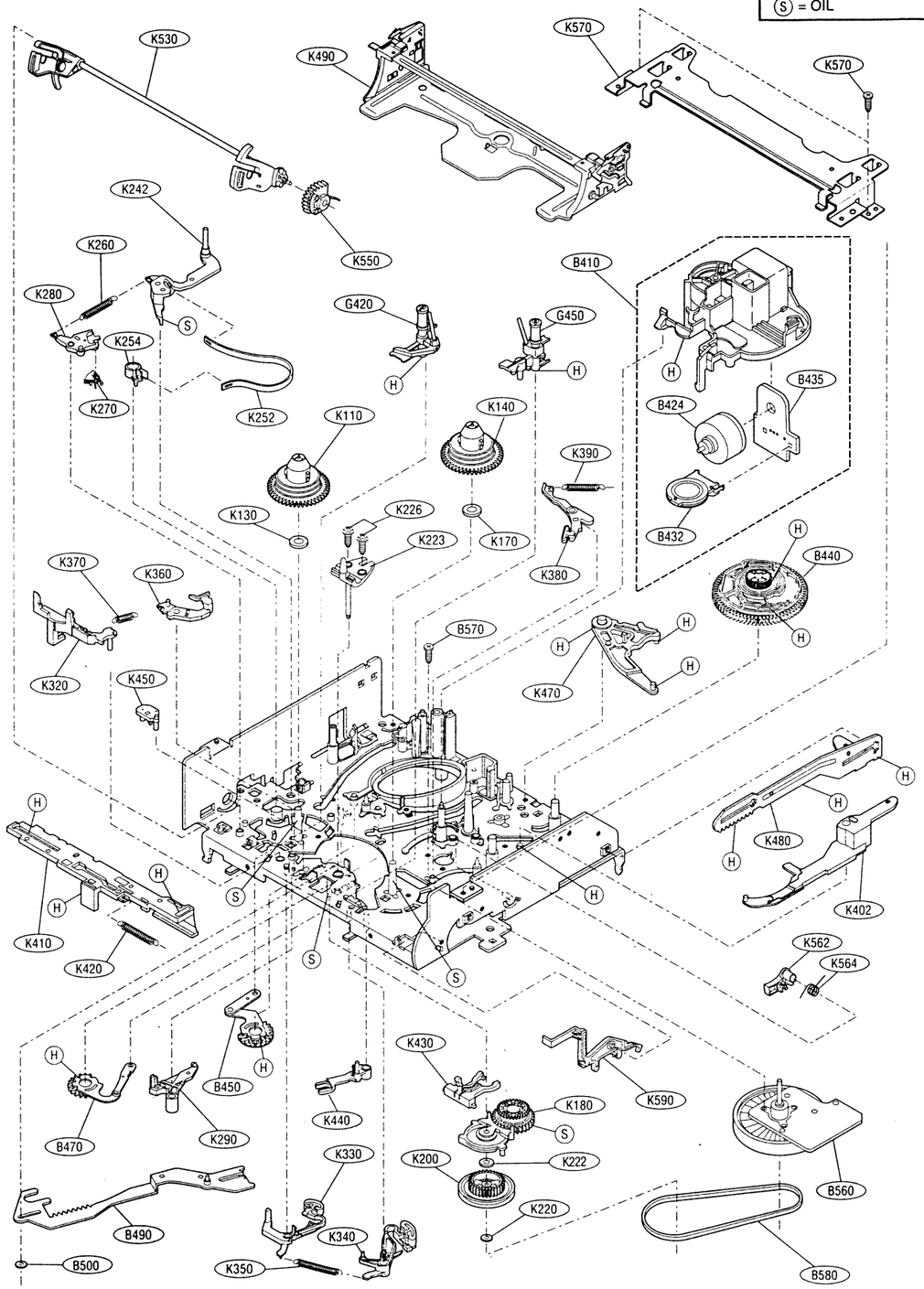


MECHANICAL PARTS (2)



MECHANICAL PARTS (2)

LUBRICATION POINTS
(H) = GREASE
(S) = OIL



Spare Parts
Ersatzteile

Pos.	Art.-Nr Part No. No.articolo	Bezeichnung	Part	Descrizione
0060		**LAUFW., MEV3-CFW.....**	**MECHANISM DECK ASSY**	**MECCANISMO CPL.**
B410 / 2	201.871.70	Lademotor R4000, kpl.	Loading drive motor, assy	Motore, cpl.
B424 / 2	201.872.40	Lademotor R4000	Loading motor	Motore
B432 / 2	201.872.90	Kurvenradschalter (SW-LOADING)	Cam sw	Camma
B440 / 2	201.873.30	Nockenzahnrad R4000	Cam gear	Camma ruota dentata
B450 / 2	201.873.20	Zahnrad, S-LOADING, kpl.	Gear	Ruota dentata
B470 / 2	201.874.40	Zahnrad, T-LOADING	Gear	Ruota dentata
B490 / 2	201.875.10	Schieber, LOADING	Slider	Slitta
B560 / 2	202.029.80	Motor, Capstan R4000	Capstan motor	Motore capstan
B580 / 2	201.887.20	Antriebsriemen R4000	Belt	Cinghia
G001 / 1	202.125.40	Kopftrommel CFWA6PK, kpl.	Drum assy, 4HD/HIFI	Tamburo di testa, cpl.
M9470	202.125.60	Kopftrommel CFWA6SK, kpl.	Drum assy, 4HD/HIFI/NTSC	Tamburo di testa, cpl.
V4445	202.049.70	Kopftrommel CFWF7PK, kpl.	Drum assy, 4HD/HIFI	Tamburo di testa, cpl.
G050 / 1	202.034.90	Schleifring kpl.	Slip ring assy	Slip ring assy
G420 / 2	201.865.10	Führungsrollenplatte, Abw.Seite, kpl.	Supply slider asy	Guida nastro, cpl.
G450 / 2	201.866.30	Führungsrollenplatte, Aufw.Seite, kpl.	Take up slider asy	Guida nastro, avvolgere, cpl.
G480 / 1	202.962.80	ACE-Kopf V3 S-COMBAT	Audio/Control head	Testina audio e impulso
G520 / 1	201.867.60	Führungshebel 9	Guide lever	Leva guida
G530 / 1	201.887.40	Voll-Löschkopf R4000	Full erase head	Testina di cancellazione
G560 / 1	201.870.20	Andruckrolle, kpl. R4000	Pinch lever asy	Rullo di pressione, cpl.
G580 / 1	201.871.20	Hebel, PINCH DRIVE, kpl.	Lever asy	Leva, cpl.
G590 / 1	201.871.50	Feder PINCH	Spring	Molla
G680 / 1	201.888.30	Kopftrommelreiniger, kpl.	Head cleaner asy	Depuratore tamburo di testa, cpl.
G688 / 1	201.888.70	Kopfreiniger	Head cleaner	Base pulire tamburo di testa
K110 / 2	201.861.10	Bandteller, Abw.Seite	Supply reel	Portabobina di svolgimento
K140 / 2	201.862.20	Bandteller, Aufw.Seite, kpl.	Take up reel asy	Portabobina avvolgimento, cpl.
K180 / 2	201.862.80	Schwenkkupplungsrolle, kpl.	Idler asy	Puleggia, cpl.
K200 / 2	201.864.60	Riemenscheibe CENTER	Gear pulley	Puleggia
K242 / 2	201.868.10	Bandzugsfühlhebel, kpl. R4000	Tension lever asy	Leva di tensione, cpl.
K252 / 2	201.868.40	Spannband (R4000) kpl.	Brake band asy	Staffa di tensione, cpl.
K254 / 2	201.868.60	Halter, Bremsband R4000	Holder	Supporto
K260 / 2	203.923.70	Feder V3 (TENSION LEVER)	Spring	Molla
K270 / 2	201.869.10	Verriegelungshebel (TENSION LEVER)	Hook	Leva arresto
K280 / 2	201.869.20	Hebel (HOOK)	Lever	Leva
K290 / 2	201.869.30	Hebel (TENSION DRIVE)	Lever	Leva
K320 / 2	201.875.80	Hebel (REC-INH)	Lever	Leva
K330 / 2	201.877.10	Hauptbremse, abwickeln	Main brake, supply	Freno principale, svolgere
K340 / 2	201.877.30	Hauptbremse, aufwickeln	Main brake, take up	Freno principale, avvolgere
K350 / 2	201.877.40	Feder	Spring	Molla
K360 / 2	201.876.20	Bremshebel, SU SOFT BRAKE	Brake lever	Leva di freno
K370 / 2	201.877.60	Feder	Spring	Molla
K380 / 2	201.877.70	Bremshebel, TU Softbrake	Lever soft brake	Leva di freno
K390 / 2	201.879.10	Feder	Spring	Molla
K402 / 2	201.876.40	Hebel (DRIVE)	Lever	Leva
K410 / 2	201.879.20	Schieber, CAM	Slider cam	Slitta
K420 / 2	201.879.30	Feder	Spring	Molla
K430 / 2	201.876.50	Hebel (IDLE-UP DOWN)	Lever	Leva
K440 / 2	201.876.60	Hebel (IDLE KICK)	Lever	Leva
K450 / 2	201.879.40	Hebel (IDLE CENTERING)	Lever	Leva
K470 / 2	201.881.90	Hebel (CAM)	Lever	Leva
K480 / 2	201.880.80	Schieber (FL DRIVE)	Slider	Slitta
K490 / 2	201.880.90	Cassettenhalter	Cassette holder	Portacassette
K530 / 2	201.875.40	Antriebachse kpl.	Drive arm asy	Spinotto comandi cpl.
K550 / 2	201.885.20	Zahnrad (LEVER DRIVE)	Gear	Ruota dentata
K562 / 2	201.885.30	Hebel (ARM BRAKE)	Lever	Leva
K564 / 2	201.885.40	Drehfeder	Torsion spring	Molla spirale piana
K570 / 2	201.885.50	Cassettenhalter TOP	Bracket	Supporto
K590 / 2	201.887.50	Hebel (DOOR OPEN)	Lever	Leva

Spare Parts
Ersatzteile

Pos.	Art.-Nr Part No. No.articolo	Bezeichnung	Part	Descrizione
		ELEKTRISCHE TEILE:	**ELECTRICAL PARTS:**	**PARTI ELETTRICO:**
0010M	**201.673.90**	**FE4212 TUNER (HF-MODULATOR)**	**FE4212 TUNER**	**FE4212 SINTONIZZATORE**
0010M	**201.829.60**	**FE4201 TUNER (HF-MODULATOR)**	**FE4201 TUNER**	**FE4201 SINTONIZZATORE**
0020M	**101.749.90**	**IF4151 ZF-EINHEIT**	**IF4151 UNIT IF**	**IF4151 UNITA FI**
0020M	**201.710.90**	**IF4130 ZF-EINHEIT**	**IF4130 UNIT IF**	**IF4130 UNITA FI**
0140M		**MPX V3H1 LTP.**	**MPX V3H1 P.C.B.**	**MPX V3H1 PIASTRA**
0140M	**203.098.90**	**MPX V3H3 LTP.**	**MPX V3H3 P.C.B.**	**MPX V3H3 PIASTRA**
0050		**MB V3L4/21/22/23/24 LTP. MAIN**	**MB V3L..... P.C.B. MAIN**	**MB V3L..... PIASTRA MAIN**
C552	339.590.256	4,2-20PF Trimmer	4,2-20PF Trimmer	4,2-20PF Condensatore regol.
C598	202.764.60 S	220MI0F 5,5V Elko (MEMORY)	220MI0F 5,5V E Cap	220MI0F 5,5V Condens. elettrolit.
C777	110.048.26	220PF 500V 10% Kerko	220PF 500V 10% C cap	220PF 500V 10% Condens. ceramico
C801,804	309.433.745 S	MP Kondensator, 0,1µF, 275V, 20%	MP cap, 0,1µF, 275V, 20%	Condens. carta metal, 0,1µF, 275V
C805	202.577.30 S	47U0F 450V 20% Elko	47U0F 450V E Cap	47U0F 450V Condens. elettrol.
C806	202.154.10 S	33NF 630V 5% MP-Kondensator	33NF 630V 5% MPoly cap	33NF 630V 5% C PM
C809,813	242.947 S	100PF 1KV 10% Keramik-Kondensator	100PF 1KV 10% C cap	100PF 1KV 10% Condens. ceramico
C823	202.148.30	1MI0F 10V Elko (MEMORY)	1MI0F 10V E Cap	1MI0F 10V Condens. elettrolit.
C926	202.807.30	470N0F 50V 20% ELKO BIPOLAR	470N0F 50V 20% E cap bi-polar	470N0F 50V 20% CE
D081	339.577.024	ZTK33B Z-Diode	ZTK33B Z-Diode	ZTK33B Z-Diodo
D503	309.325.927	1N4148 Diode	1N4148 Diode	1N4148 Diodo
D507,508	339.529.964	ERA15-02 Diode	ERA15-02 Diode	ERA15-02 Diodo
D509	202.966.80	MTZJ7,5B Z-Diode	MTZJ7,5B Z-Diode	MTZJ7,5B Z-Diodo
D512,597	339.529.964	ERA15-02 Diode	ERA15-02 Diode	ERA15-02 Diodo
D596	905.258.00	1SS176-TPA4 Diode	1SS176-TPA4 Diode	1SS176-TPA4 Diodo
D803	339.527.096 S	S1WB(A)60 Brückengleichrichter	S1WB(A)60 Bridge rectifer diode	S1WB(A)60 Ponte di diodo
D804	464.790	ZPD3,9 5% Z-Diode	ZPD3,9 5% Z-Diode	ZPD3,9 5% Z-Diodo
D805	309.325.927	1N4148 Diode	1N4148 Diode	1N4148 Diodo
D806	339.529.824	RU1P Diode	RU1P Diode	RU1P Diodo
D807	339.529.964	ERA15-02 Diode	ERA15-02 Diode	ERA15-02 Diodo
D808	256.421	ZPD5V1 Z-Diode	ZPD5V1 Z-Diode	ZPD5V1 Z-Diodo
D809	339.527.175	ZPD6,8V 2% 0,5W Z-Diode	ZPD6,8V 2% 0,5W Z-Diode	ZPD6,8V 2% 0,5W Z-Diodo
D821	203.373.40	ERC91-02 Diode	ERC91-02 Diode	ERC91-02 Diodo
D822	238.020	MBR360 Diode	MBR360 Diode	MBR360 Diodo
D823	339.529.905	1SS136 Diode	1SS136 Diode	1SS136 Diodo
D824	404.312.40	EL1Z LF-F6 Diode	EL1Z LF-F6 Diode	EL1Z LF-F6 Diodo
D825	200.685.30	MA2091 Z-Diode	MA2091 Z-Diode	MA2091 Z-Diodo
D891	905.258.00	1SS176-TPA4 Diode	1SS176-TPA4 Diode	1SS176-TPA4 Diodo
D901	204.193.00	1SS184-R Diode SMD	1SS184-R Diode	1SS184-R Diodo
D930,931	266.939	ZPD15V Z-Diode	ZPD15V Z-Diode	ZPD15V Z-Diodo
DI01	252.727	GL451V IR-Diode	GL451V IR-Diode	GL451V IR-Diodo
DI01A	202.017.80	Halter LED, R4000	LED holder	Supporto LED
F801	202.621.70 S	1,6A FF 250V Sicherung	1,6A FF 250V Fuse	1,6A FF 250V Fusibile
IC101	202.703.40	TA8894AF IC	TA8894AF IC	TA8894AF CI
IC201	203.390.80	TA8892AN-B IC	TA8892AN-B IC	TA8892AN-B CI
IC218	339.555.219	IMH6 Transistor SMD	IMH6 Transistor	IMH6 Transistore
IC264	490.008.0679	IMZ1 Transistor	IMZ1 Transistor	IMZ1 Transistore
IC416,418	339.555.219	IMH6 Transistor SMD	IMH6 Transistor	IMH6 Transistore
IC501	202.126.60	TMP90PR74DF IC FLAT * unprogrammiert *	TMP90PR74DF IC	TMP90PR74DF CI
IC502	202.144.10	TA7267BP IC	TA7267BP IC	TA7267BP CI
IC503	202.577.60	TB6515AP IC	TB6515AP IC	TB6515AP CI
IC504	203.168.70	ST24C08/CB1 IC	ST24C08/CB1 IC	ST24C08/CB1 CI

Spare Parts
Ersatzteile

Pos.	Art.-Nr Part No. No.articolo		Bezeichnung	Part	Descrizione
IC505	202.504.10		PST7032MT IC	PST7032MT IC	PST7032MT CI
IC598	339.576.972		7805AC IC	7805AC IC	7805AC CI
IC599	202.504.30		PST7045MT IC	PST7045MT IC	PST7045MT CI
IC701	257.963		BA7755 IC	BA7755 IC	BA7755 CI
IC803	202.577.50		STRD6802 IC	STR-D6802 IC	STR-D6802 CI
IC821	202.147.40		LA5611 IC	LA5611 IC	LA5611 CI
IC920	202.705.20		TA8863AF IC	TA8863AF IC	TA8863AF CI
JP813	202.583.20	S	3,15A FF 125V Sicherung	3,15A FF 125V Fuse	3,15A FF 125V Fusibile
L505-508	110.685.00		ZBF253D-00 EMI-Filter	ZBF253D-00 EMI-Filter	ZBF253D-00 EMI-Filtro
L771	202.807.10		TRS-43KHZ Oszillator Spule	TRS-43KHZ Oscillator coil	TRS-43KHZ Bobina oscillatore
L781	202.807.20		TRS-70KHZ Oszillator Spule	TRS-70KHZ Oscillator coil	TRS-70KHZ Bobina oscillatore
L826,901	110.685.00		ZBF253D-00 EMI-Filter	ZBF253D-00 EMI-Filter	ZBF253D-00 EMI-Filtro
Q211,213	703.828.00		2SC2712Y-R Transistor	2SC2712Y-R Transistor	2SC2712Y-R Transistore
Q212,214	803.888.00		2SA1162Y-R Transistor SMD	2SA1162Y-R Transistor	2SA1162Y-R Transistore
Q215,261	803.888.00		2SA1162Y-R Transistor SMD	2SA1162Y-R Transistor	2SA1162Y-R Transistore
Q262	238.025		RN1404 (TE85L/R) Transistor SSD	RN1404 (TE85L/R) Transistor	RN1404 (TE85L/R) Transistore
Q410,438	703.828.00		2SC2712Y-R Transistor	2SC2712Y-R Transistor	2SC2712Y-R Transistore
Q417,439	238.025		RN1404 (TE85L/R) Transistor SSD	RN1404 (TE85L/R) Transistor	RN1404 (TE85L/R) Transistore
Q506,507	309.591.50		DTC114EKT146 Transistor SSD	DTC114EKT146 Transistor	DTC114EKT146 Transistore
Q508,509	242.866		2SA1020Y Transistor	2SA1020Y Transistor	2SA1020Y Transistore
Q510,511	109.661.00		RN1401 Transistor SSD	RN1401 Transistor	RN1401 Transistore
Q513	803.888.00		2SA1162Y-R Transistor SMD	2SA1162Y-R Transistor	2SA1162Y-R Transistore
Q514	202.448.30		2SA1162GR Transistor SMD	2SA1162GR Transistor	2SA1162GR Transistore
Q771,781	703.826.00		2SC1959 Transistor	2SC1959 Transistor	2SC1959 Transistore
Q772,773	202.366.10		2SC2411KQ Transistor SMD	2SC2411KQ Transistor	2SC2411KQ Transistore
Q802	202.455.10		PC120FY2 Fotokoppler	PC120FY2 Photo coupler	PC120FY2 Coupleur optique
Q822	203.043.30		KTD2092 Transistor	KTD2092 Transistor	KTD2092 Transistore
Q823	202.054.90		PQ12RF1 IC	PQ12RF1 IC	PQ12RF1 CI
QI01,02	252.729		NM5 PT493F PH-Transistor	NM5 PT493F PH-Transistor	NM5 PT493F PH-Transistore
QI01A	201.954.50		Halter (START-SENSOR) R4000	Holder	Supporto
QI02A	201.954.40		Halter (END-SENSOR) R4000	Holder	Supporto
QI03-05	703.828.00		2SC2712Y-R Transistor	2SC2712Y-R Transistor	2SC2712Y-R Transistore
R111	202.334.40	S	8R2 0,5W 5% Sicherheitswiderstand	8R2 0,5W 5% Fusible resistor	8R2 0,5W 5% Resistenza fusibile
R591	202.703.60	S	18R 0,250W 5% Sicherheitswiderstand	18R 0,250W 5% Fusible resistor	18R 0,250W 5% Resistenza fusibile
R805	202.581.30		39K0 2W 5% Metalloxydwiderstand	39K0 2W 5% Metal oxide resistor	39K0 2W 5% Resistenza metallico
R806	413.356.04		560R0 2W 5% Metalloxydwiderstand	560R0 2W 5% Metal oxide resistor	560R0 2W 5% Resistenza metallico
R807	266.582		Metallfilmwiderstand, 180Ω, 0,6W, 10%	Metal film resistor, 180Ω	Resistenza a filo, 180Ω
R810	200.547.20		0R510 2W 5% Metalloxydwiderstand	0R510 2W 5% Metal oxide resistor	0R510 2W 5% Resistenza metallico
RF826	202.615.20	S	1R5 0,250W 5% Sicherheitswiderstand	1R5 0,250W 5% Fusible resistor	1R5 0,250W 5% Resistenza fusibile
RF827	202.615.10	S	2R7 0,5W 5% Sicherheitswiderstand	2R7 0,5W 5% Fusible resistor	2R7 0,5W 5% Resistenza fusibile
SI02	101.376.10		SPPB62 Druckschalter	SPPB62 Push switch	SPPB62 Commutatore
T801	202.330.40	S	TF-Mains Filter 15MI0H	Line filter	Bobina di filtraggio
T802	203.346.60	S	Trafo Schaltnetzteil	Switched mode power transformer	Trasformatore elettronico
W001,002	101.828.50		Folienkabel 16x1,25mm 124mm wh	FFC-Jumper 16-pole	Cavo, 16poli
W501	101.763.50		Folienkabel 14x1,25mm 124mm wh	FFC-Jumper 14-pole	Cavo, 14poli
W503	101.674.20		Folienkabel 6x1,25mm 124mm wh	FFC-Jumper 6-pole	Cavo, 6poli
W701	101.644.50		Folienkabel 7x1,25mm 164mm wh	FFC-Jumper 7-pole	Cavo, 7poli
W704	101.674.20		Folienkabel 6x1,25mm 124mm wh	FFC-Jumper 6-pole	Cavo, 6poli
X401	202.636.70		4M433619Hz Quarz	4M433619Hz Crystal	4M433619Hz Quarzo
X501	202.647.70		16M0HZ Quarz	16M0HZ Crystal	16M0HZ Quarzo
X502	339.344.722		32K768HZ Quarz	32K768HZ Crystal	32K768HZ Quarzo
X503	202.503.30		17M734475HZ Quarz	17M734475HZ Crystal	17M734475HZ Quarzo

Spare Parts
Ersatzteile

Pos.	Art.-Nr Part No. No.articolo		Bezeichnung	Part	Descrizione
Z502	101.505.60		Statorkern TTN4	Stator core TTN4	Stator core TTN4
Z801,821	202.482.50	S	400MI0 A 50V IC-Sicherung (IC-PROT)	400MI0 A 50V IC-Protector	400MI0 A 50V IC-Protector
Z822	202.147.90		DC-DC Converter	DC-DC Converter	Convertitore DC-DC
ZI01,02	101.376.70		GP1S562 PHOTO COUPLER	GP1S562 PHOTO COUPLER	GP1S562 PHOTO COUPLER
ZI10	202.151.60		HW-300B (F+1/2E) Hall Sensor	HW-300B Hall Sensor	HW-300B Hall Palpatore
ZI10A	201.954.30		Halter (HALL SENSOR)	Holder	Supporto
0020M			**IF4130 ZF-EINHEIT**	**IF4130 UNIT IF**	**IF4130 UNITA FI**
ZF	201.710.90		IF4130 ZF-EINHEIT	IF4130 UNIT IF	IF4130 UNITA FI
DI10	309.325.201		BA582 SMD Diode	BA582 SMD Diode	BA582 SMD Diodo
FI10	256.225		32M7HZ Filter LA7x7	32M7HZ Filter	32M7HZ Filtro
FI11	203.009.50		40M4HZ Filter LA7x7	40M4HZ Filter	40M4HZ Filtro
FI18	202.321.10		K9260M Oberflächenwellenfilter	K9260M Surface acoustic wave filter	K9260M Filtro a onde superficiali
FI19	490.008.0387		TSF5315U Oberflächenwellenfilter	TSF5315U Surf. acoustic wave filter	TSF5315U Filtro a onde superficiali
FI20	256.227		38M9HZ Filter 220NH LA7x7	38M9HZ Filter	38M9HZ Filtro
FI30	309.103.986		36M0HZ Filter LA7x7	36M0HZ Filter	36M0HZ Filtro
II20	339.576.911		TDA5930 IC	TDA5930 IC	TDA5930 CI
II30	256.671		LA7555 IC	LA7555 IC	LA7555 CI
PI20	309.509.173		10K0OHM 0,033W Potentiometer H	10K0OHM Potentiometer	10K0OHM Potenziometro
RI24	276.873	S	10R 0,3W 5% Sicherheitswiderstand	10R 0,3W 5% Fusible resistor	10R 0,3W 5% Resistenza fusibile
TI10	242.857		MMBTH10LT1 Transistor SMD	MMBTH10LT1 Transistor	MMBTH10LT1 Transistore
00201M	**M9470**		**IF4151 ZF-EINHEIT**	**IF4151 UNIT IF**	**IF4151 UNITA FI**
ZF	101.749.90		IF4151 ZF-EINHEIT	IF4151 UNIT IF	IF4151 UNITA FI
DI01-03,05	309.325.201		BA582 SMD Diode	BA582 SMD Diode	BA582 SMD Diodo
DI30,43	309.325.201		BA582 SMD Diode	BA582 SMD Diode	BA582 SMD Diodo
FI10	256.225		32M7HZ Filter LA7x7	32M7HZ Filter	32M7HZ Filtro
FI11	203.009.50		40M4HZ Filter LA7x7	40M4HZ Filter	40M4HZ Filtro
FI12	202.705.10		72M4HZ Filter LA7x7	72M4HZ Filter	72M4HZ Filtro
FI20	256.227		38M9HZ Filter 220NH LA7x7	38M9HZ Filter	38M9HZ Filtro
FI40	309.103.986		36M0HZ Filter LA7x7	36M0HZ Filter	36M0HZ Filtro
II10	100.356.00		CXA1165/P IC	CXA1165/P IC	CXA1165/P CI
II20	339.576.911		TDA5930 IC	TDA5930 IC	TDA5930 CI
II30	309.368.356		TDA4445B IC	TDA4445B IC	TDA4445B CI
II40	309.368.696		U4454/B IC	U4454/B IC	U4454/B CI
PI20	309.509.173		10K0OHM 0,033W Potentiometer H	10K0OHM Potentiometer	10K0OHM Potenziometro
QI20	100.851.20		OFWG3965M Oberflächenwellenfilter	Surface acoustic wave filter	Filtro a onde superficiali
QI40	309.229.938		TSB5304U OFW-FILTER		
QI41	804.081.25		OFWL9360M Oberflächenwellenfilter	OFWL9360M Surface wave filter	OFWL9360M Filtro a onde superf.
TI01	242.047		RN1403 Transistor SSD	RN1403 Transistor	RN1403 Transistore
TI02	352.875.5000		BC857B Transistor SMD	BC857B Transistor	BC857B Transistore
TI03,06	249.063		BC847B Transistor SMD	BC847B Transistor	BC847B Transistore
TI04	242.857		MMBTH10LT1 Transistor SMD	MMBTH10LT1 Transistor	MMBTH10LT1 Transistore

Pos.	Art.-Nr Part No. No.articolo	Bezeichnung	Part	Descrizione
0140M		**MPX V3H1 LTP.**	**MPX V3H1 P.C.B.**	**MPX V3H1 PIASTRA**
CD51	339.590.256	4,2-20PF Trimmer	4,2-20PF Trimmer	4,2-20PF Condensatore regol.
D01	109.686.00	MA111 Diode SMD	MA111 Diode	MA111 Diodo
ICD01	202.055.30	TA78L008AP IC	TA78L008AP IC	TA78L008AP CI
ICD03	202.473.70	MSP3410 IC	MSP3410 IC	MSP3410 CI
ICD04,05	276TX3815	M5218AP IC	M5218AP IC	M5218AP CI
JPD17	201.892.20 S	250MI0 A 50V IC-Sicherung (IC-PROT)	250MI0 A 50V IC-Protector	250MI0 A 50V IC-Protector
QD06,10,90	703.828.00	2SC2712Y-R Transistor	2SC2712Y-R Transistor	2SC2712Y-R Transistore
QD07,11	604.558.90	IMX1 Transistor ARRAY	IMX1 Transistor	IMX1 Transistore
QD09	202.058.00	RN2402 Transistor SSD	RN2402 Transistor	RN2402 Transistore
QD12	203.022.60	KTA1273 Transistor	KTA1273 Transistor	KTA1273 Transistore
QD13	109.662.00	RN1402 (TE85L/R) Transistor SSD	RN1402 (TE85L/R) Transistor	RN1402 (TE85L/R) Transistore
XD01	202.096.20	18M432HZ Quarz	18M432HZ Crystal	18M432HZ Quarzo
ZD01-12	110.685.00	ZBF253D-00 EMI-Filter	ZBF253D-00 EMI-Filter	ZBF253D-00 EMI-Filtro
ZD91	202.984.10	6M5HZ Keramikfilter	6M5HZ Ceramic filter	6M5HZ Filtro ceramico
0072M		**SUB MB V3L.... LTP. MAIN**	**SUB MB V3L.... P.C.B. MAIN**	**SUB MB V3L.... PIASTRA MAIN**
IC891	202.493.90	PQ05SZ11 IC	PQ05SZ11 IC	PQ05SZ11 CI
IC980	202.729.70	M5222FP IC	M5222FP IC	M5222FP CI
IC981	202.715.70	LA6458M IC	LA6458M IC	LA6458M CI
Q001,026	703.828.00	2SC2712Y-R Transistor	2SC2712Y-R Transistor	2SC2712Y-R Transistore
Q002,060	803.888.00	2SA1162Y-R Transistor SMD	2SA1162Y-R Transistor	2SA1162Y-R Transistore
Q003	109.662.00	RN1402 (TE85L/R) Transistor SSD	RN1402 (TE85L/R) Transistor	RN1402 (TE85L/R) Transistore
Q061,982	703.828.00	2SC2712Y-R Transistor	2SC2712Y-R Transistor	2SC2712Y-R Transistore
Q070	109.662.00	RN1402 (TE85L/R) Transistor SSD	RN1402 (TE85L/R) Transistor	RN1402 (TE85L/R) Transistore
Q071	202.058.00	RN2402 Transistor SSD	RN2402 Transistor	RN2402 Transistore
Q075	242.047	RN1403 Transistor SSD	RN1403 Transistor	RN1403 Transistore
Z001	203.021.60	5M5HZ Keramikfilter	5M5HZ Ceramic filter	5M5HZ Filtro ceramico
Z002	100.009.20	6M0HZ Keramikfilter	6M0HZ Ceramic filter	6M0HZ Filtro ceramico
Z060	202.984.10	6M5HZ Keramikfilter	6M5HZ Ceramic filter	6M5HZ Filtro ceramico
0031M	**M9460/V3445SV**	**TMB1 V3L2 LTP. TERMINAL BOARD 1**	**TMB1 V3L2 P.C.B.**	**TMB1 V3L2 PIASTRA**
DF101,102	339.527.177	LL4148 Diode SMD	LL4148 Diode	LL4148 Diodo
DF201	242.038	ZMM9,1 Z-Diode SMD	ZMM9,1 Z-Diode	ZMM9,1 Z-Diodo
DF202	339.527.177	LL4148 Diode SMD	LL4148 Diode	LL4148 Diodo
IF101	242.045	HEF4052BT IC	HEF4052/BT, IC	HEF4052/BT, CI
IF102,103	276TX3894	HEF4053/BT IC	HEF4053/BT IC	HEF4053/BT CI
IF105	101.066.70	STV6400 IC	STV6400 IC	STV6400 CI
IF106	101.443.10	SDA5648 IC	SDA5648 IC	SDA5648 CI
IF107	490.008.0367	MC1458/D IC	MC1458/D IC	MC1458/D CI
PF013	339.540.938	Buchse Euro AV (SCART), BK2093	Scart socket	Presa peritelevision
PF014	102.517.20	Buchse Euro AV (SCART), BU2093	Scart socket	Presa peritelevision
PF015	102.054.30	Cinch Buchse	Cinch socket	Boccola cinch
RF201	309.580.990 S	8R2 0,3W 5% Sicherheitswiderstand	8R2 0,3W 5% Fusible resistor	8R2 0,3W 5% Resistenza fusibile
TF101,102	339.555.241	BC848B Transistor SMD	BC848B Transistor	BC848B Transistore
TF107	109.662.00	RN1402 (TE85L/R) Transistor SSD	RN1402 (TE85L/R) Transistor	RN1402 (TE85L/R) Transistore

Pos.	Art.-Nr Part No. No.articolo	Bezeichnung	Part	Descrizione
TF112,113	109.662.00	RN1402 (TE85L/R) Transistor SSD	RN1402 (TE85L/R) Transistor	RN1402 (TE85L/R) Transistore
TF114,116	339.555.241	BC848B Transistor SMD	BC848B Transistor	BC848B Transistore
TF115,117	270TX2446	BC858B Transistor SMD	BC858B Transistor	BC858B Transistore
TF201	603.908.00	2SC2236-Y Transistor	2SC2236-Y Transistor	2SC2236-Y Transistore
TF202	339.555.241	BC848B Transistor SMD	BC848B Transistor	BC848B Transistore
TF203	270TX2446	BC858B Transistor SMD	BC858B Transistor	BC858B Transistore
0031M	**M9470/V4445SV**	**TMB1 V3N2/3 LTP. TERMINAL BOARD 1**	**TMB1 V3N2/3 P.C.B.**	**TMB1 V3N2/3 PIASTRA**
DF101,102	339.527.177	LL4148 Diode SMD	LL4148 Diode	LL4148 Diodo
DF207,208	339.527.177	LL4148 Diode SMD	LL4148 Diode	LL4148 Diodo
IF101	242.045	HEF4052BT IC	HEF4052/BT, IC	HEF4052/BT, CI
IF102,103	276TX3894	HEF4053/BT IC	HEF4053/BT IC	HEF4053/BT CI
IF105	101.066.70	STV6400 IC	STV6400 IC	STV6400 CI
IF106	101.443.10	SDA5648 IC	SDA5648 IC	SDA5648 CI
IF107	490.008.0367	MC1458/D IC	MC1458/D IC	MC1458/D CI
PF013	339.540.938	Buchse Euro AV (SCART), BK2093	Scart socket	Presa peritelevision
PF014	102.517.20	Buchse Euro AV (SCART), BU2093	Scart socket	Presa peritelevision
PF015	102.054.30	Cinch Buchse	Cinch socket	Boccola cinch
TF101-103	339.555.241	BC848B Transistor SMD	BC848B Transistor	BC848B Transistore
TF104,115	270TX2446	BC858B Transistor SMD	BC858B Transistor	BC858B Transistore
TF107,112	109.662.00	RN1402 (TE85L/R) Transistor SSD	RN1402 (TE85L/R) Transistor	RN1402 (TE85L/R) Transistore
TF113	109.662.00	RN1402 (TE85L/R) Transistor SSD	RN1402 (TE85L/R) Transistor	RN1402 (TE85L/R) Transistore
TF114,116	339.555.241	BC848B Transistor SMD	BC848B Transistor	BC848B Transistore
TF117,203	270TX2446	BC858B Transistor SMD	BC858B Transistor	BC858B Transistore
TF118,119	339.555.241	BC848B Transistor SMD	BC848B Transistor	BC848B Transistore
TF202	339.555.241	BC848B Transistor SMD	BC848B Transistor	BC848B Transistore
TF210	202.054.90	PQ12RF1 IC	PQ12RF1 IC	PQ12RF1 CI
0032M	**M9460/70/V3445**	**TMB2 V3N1 LTP. TERMINAL BOARD 2**	**TMB2 V3N1 P.C.B.**	**TMB2 V3N1 PIASTRA**
IF801	508.992.40	BA7025L IC	BA7025L IC	BA7025L CI
LF801	202.751.90	7K8HZ 20MI0H Filter LA7x7	7K8HZ Filter	7K8HZ Filtro
QF801	203.155.50	4M5HZ Keramikfilter	4M5HZ Ceramic filter	4M5HZ Filtro ceramico
TF801,804	339.555.241	BC848B Transistor SMD	BC848B Transistor	BC848B Transistore
TF805,830	339.555.241	BC848B Transistor SMD	BC848B Transistor	BC848B Transistore
TF807	109.662.00	RN1402 (TE85L/R) Transistor SSD	RN1402 (TE85L/R) Transistor	RN1402 (TE85L/R) Transistore
TF808,831	238.025	RN1404 (TE85L/R) Transistor SSD	RN1404 (TE85L/R) Transistor	RN1404 (TE85L/R) Transistore
0025M		**VB2 V3H1 LTP. VIDEO 2**	**VB2 V3H1 P.C.B. VIDEO 2**	**VB2 V3H1 PIASTRA VIDEO 2**
IC231	201.933.20	TL8844P IC	TL8844P IC	TL8844P CI
IC431	201.933.30	TL8843P IC	TL8843P IC	TL8843P CI
Q235,435	703.828.00	2SC2712Y-R Transistor	2SC2712Y-R Transistor	2SC2712Y-R Transistore
Q436,442	238.025	RN1404 (TE85L/R) Transistor SSD	RN1404 (TE85L/R) Transistor	RN1404 (TE85L/R) Transistore
Q437,440	703.828.00	2SC2712Y-R Transistor	2SC2712Y-R Transistor	2SC2712Y-R Transistore
Q441,485	703.828.00	2SC2712Y-R Transistor	2SC2712Y-R Transistor	2SC2712Y-R Transistore
Q486,487	803.888.00	2SA1162Y-R Transistor SMD	2SA1162Y-R Transistor	2SA1162Y-R Transistore
Q488	703.828.00	2SC2712Y-R Transistor	2SC2712Y-R Transistor	2SC2712Y-R Transistore
0035M		**VB3 V3H1 LTP. VIDEO 3**	**VB3 V3H1 P.C.B. VIDEO 3**	**VB3 V3H1 PIASTRA VIDEO 3**
Q414,415	703.828.00	2SC2712Y-R Transistor	2SC2712Y-R Transistor	2SC2712Y-R Transistore

Spare Parts
Ersatzteile

Pos.	Art.-Nr Part No. No.articolo	Bezeichnung	Part	Descrizione
0210M	**V3445SV**	**KDB1 V3R2 LTP. TIMER/DISPLAY**	**KDB1 V3R2 P.C.B. TIMER/DISPLAY**	**KDB1 V3R2 P.TIMER/DISPLAY**
DK66	242.069	ZMM4,7 Z-Diode SMD	ZMM4,7 Z-Diode	ZMM4,7 Z-Diodo
DK81	339.527.177	LL4148 Diode SMD	LL4148 Diode	LL4148 Diodo
GK01	202.646.50	Fluoreszenzanzeige/Display BJ282GK	Fluorescent display panel	Indicatore/Display
GK02-04	202.686.00	TSIP5201 IR-Diode	TSIP5201 IR-Diode	TSIP5201 IR-Diodo
GK11-14	203.197.20	LG5411S D-Disled GN	LG5411S D-Disled	LG5411S D-Disled
GK16,18	203.197.20	LG5411S D-Disled GN	LG5411S D-Disled	LG5411S D-Disled
IK01	201.350.10	TMP87PP71F IC FLAT * unprogrammiert *	TMP87PP71F IC	TMP87PP71F CI
PK04	339.542.058	Kopfhörerbuchse 3,5mm	Headphone socket	Boccola cuffia
QK01	309.335.711	8M0HZ Quarz	8M0HZ Resonator	8M0HZ Risonatore
SK01-04,06	203.459.10	Taktschalter	Tact switch	Interruttore
SK08,09-11	203.459.10	Taktschalter	Tact switch	Interruttore
TJ06,07	339.556.787	BC337-40 Transistor	BC337-40 Transistor	BC337-40 Transistore
TK06	803.888.00	2SA1162Y-R Transistor SMD	2SA1162Y-R Transistor	2SA1162Y-R Transistore
ZK01	201.309.10	TFMT5330 IC "Infrarot Empfänger"	TFMT5330 IC "Infrared receiver"	TFMT5330 CI "Ricevit. infrar."
0212M	**NM**	**KDB2 V3R4 LTP. FRONTBUCHSEN**	**KDB2 V3R4 P.C.B. SOCKETS**	**KDB2 V3R4 P. PRESE**
BJ05A	101.763.30	Folienkabel 5x1,25mm 124mm	Wire EQ flex, 5-pole	Cavo, 5poli
GK15,17	203.197.20	LG5411S D-Disled GN	LG5411S D-Disled	LG5411S D-Disled
PK01	204.838.20	Cinch Buchse, JPJ2022-01-040	Cinch socket	Boccola cinch
PK02	309.300.90	Cinch Buchse JPJ2022-01-030 WH	Cinch socket	Boccola cinch
PK03	110.430.10	Klinkenbuchse 6,3mm RED	Pin jack 6,3mm	Presa cuffia 6,3mm
SK05,07	203.459.10	Taktschalter	Tact switch	Interruttore
0216M	**NM**	**FJB2 V3U1 LTP. FRONT**	**FJB2 V3U1 PCB JACK**	**FJB2 V3U1 PIASTRA PRESA**
BE001	101.763.60	Folienkabel 7x1,25mm 194mm	Wire EQ flex, 7-pole	Cavo, 7poli
BE03	101.829.20	Klinkenbuchse 3,5mm	Headphone socket	Boccola cuffia
DE01,02	339.527.177	LL4148 Diode SMD	LL4148 Diode	LL4148 Diodo
TE01-05	249.063	BC847B Transistor SMD	BC847B Transistor	BC847B Transistore
0212M	**M9470**	**KDB2 V3S1 LTP. FRONTBUCHSEN**	**KDB2 V3S1 P.C.B. SOCKETS**	**KDB2 V3S1 P. PRESE**
BE001	101.763.60	Folienkabel 7x1,25mm 194mm	Wire EQ flex, 7-pole	Cavo, 7poli
BE003	101.763.30	Folienkabel 5x1,25mm 124mm	Wire EQ flex, 5-pole	Cavo, 5poli
BE04,05	202.043.10	Cinch Buchse, JPJ2022-01-010 BK	Cinch socket	Boccola cinch
BE06	202.727.80	Cinch Buchse, JPJ1022-01-010 BK	Cinch socket	Boccola cinch
BE07	339.542.058	Kopfhörerbuchse 3,5mm	Headphone socket	Boccola cuffia
BE08	102.062.30	Kopfhörerbuchse 3,5mm	Headphone socket	Boccola cuffia
DE01,02	339.527.177	LL4148 Diode SMD	LL4148 Diode	LL4148 Diodo
TE01-05	249.063	BC847B Transistor SMD	BC847B Transistor	BC847B Transistore

Pos.	Art.-Nr Part No. No.articolo	Bezeichnung	Part	Descrizione
		ALLGEMEINE TEILE:	**GENERAL PARTS:**	**PARTI GENERALI:**
		ZUBEHÖR /BEIPACK:	**ACCESSORIES:**	**ACCESSORI:**
FB / M9460	202.556.70	RC1405 IR-GEBER	RC1405 REMOTE CONTR. UNIT	RC1405 TELECOMANDO INFRA
M9470	203.729.90	RC1408X IR-GEBER	RC4108X REMOTE CONTR. UNIT	RC4108X TELECOMANDO INFRA
V3445SV	202.558.30	RC4208X IR-GEBER	RC4208X REMOTE CONTR. UNIT	RC4208X TELECOMANDO INFRA
V4445SV	202.558.30	RC4208X IR-GEBER	RC4208X REMOTE CONTR. UNIT	RC4208X TELECOMANDO INFRA
0060C	238.275	Antennenkabel	Antenna cable	Cavo antenna
0195	202.727.50 S	Netzanschlußleitung	Power cord	Cavo di rete
-	102.760.00	Scart AV Kabel	Scart AV Cable	Scart AV Cavo
0080C	252.014	Anschlusskabel, Cinch	Connection lead, cinch	Cavo di allacciamento, cinch
		SERVICE-UNTERLAGEN:	**SERVICE INFORMATIONS:**	**INFORMAZIONI PER L'ASSISTENZA:**
SI	102.859.90	Serv.Info R4000 MONO/HIFI Einst.Anl. m./e.	Mech. adjust service	Regol. service mecc.

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